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ELECTRIC RAILWAY TRACTION

A Supplement illustrating and describing developments in Electric Railway Traction is presented with each copy of this week's issue.

Four Eminent Engineers

THIS week we have the sad duty of recording the deaths of four eminent men connected, in their several spheres, with railways. Mann, Szlumper, Sandberg, Highet—all are names which will be written prominently in railway history. Sir Robert Highet, C.B.E., rose from Assistant to District and then Chief Engineer, and finally to the chief executive post of Agent, on the East Indian Railway. He subsequently became Chairman of this railway and of another—the Nizam's—was director of a third, and combined with a sound engineering knowledge a remarkable capacity for efficient administration. Mr. A. W. Szlumper, also a C.B.E., remained upon, and rose to adorn, the very top of the technical side of railway work. Mr. N. P. P. Sandberg, the youngest of the well-known trio of brothers in partnership as consulting engineers, by his specialised knowledge rendered invaluable service in the munitioning of the Allied forces during the war, and added his quota to the contribution of the Sandberg firm to the development of the steel rail. Sir Donald Mann, in partnership with Sir William Mackenzie, is perhaps as well known as any railway builder, at least in Canada if not everywhere in America, and to his personal forcefulness, organising ability, and successful control of labour the Dominion owes much of its development in all directions. To the works of these men who have now passed over the development of industrial civilisation owes much.

A. W. Szlumper

By the death of Mr. A. W. Szlumper last Sunday an outstanding figure of the railway engineering world has been removed and will be missed. By those who were associated with him during his long connection with the London & South Western Railway and its successor the Southern Railway, extending to just half a century, his loss will be especially felt, for although he had retired from active service, he remained as a consultant to the Southern Railway, and his cheery presence was still often in evidence at Waterloo. As an engineer he has left enduring monuments in the numerous works of development for which he was responsible and the chief of which are enumerated in an obituary notice on page 806. His scope was wide and embraced high speed main lines, light railways, a London tube, a dense network of suburban lines, latterly electrified, and all the complementary but vital details and appurtenances that go to ensure the safe and speedy transport of people and goods. Mr. Szlumper did not confine his activities entirely to his duties, but, by the presentation of papers to the Institution of Civil Engineers, by his presidency of the Permanent Way Institution, and in many other ways, contributed to the progress of the railway engineering profession generally.

* * * *

The Week's Traffics

Traffics of the four group companies for the past week which do not in themselves make a good showing compare with very satisfactory returns for the corresponding week in 1933 when the L.N.E.R. had an increase of £67,000, and the Great Western and the L.M.S.R. recorded gains of £27,000 and £26,000 respectively. The advances in merchandise for the 1933 week were £55,000 for the L.N.E.R., £33,000 for the L.M.S.R., and £18,000 for the Great Western, and passenger train increases of £9,000 and £3,000 respectively were shown by the Great Western and the L.N.E.R. For the first 45 weeks of 1934 the four companies together have estimated traffics of £129,246,000, an increase of £5,055,000 or 4·07 per cent.

	45th Week				Inc. or dec.	
	Pass. &c.	Goods, &c.	Coal, &c.	Total.	Year to date	
	£	£	£	£	£	%
L.M.S.R. ..	+ 4,000	+ 1,000	+ 13,000	+ 18,000	+ 2,072,000	+ 4·17
L.N.E.R. ..	− 3,000	+ 1,000	+ 3,000	+ 1,000	+ 2,003,000	+ 5·52
G.W.R. ..	+ 2,000	− 1,000	− 3,000	− 2,000	+ 585,000	+ 2·77
S.R. ..	+ 3,000	− 500	− 1,500	+ 1,000	+ 395,000	+ 2·31

London Transport shows a decrease of £5,700 for the past week, the first, we believe, since it started operations. The Mersey has an increase of £18 for the week, and the three Irish railways show some improvement.

* * * *

Sanity in Acceleration

A popular performer in seventeenth century London was the mountebank who volunteered to swallow a living fowl, complete with feathers, at one mouthful. Although he was generously applauded for his pains, there is no record of any of his audience venturing to repeat the experiment at home, recognising that such feats are neither healthy, safe nor economic. There is as wide a breach between normal gastronomy and the wholesale assimilation of poultry as between ordinary travel and the extremes of speed set up by modern record breakers, but the present-day public is prone to cry for the prodigious and in so doing to cast odium upon more prosaic and serviceable achievements. In his paper to the Institute of Transport last Monday on the Speed of Travel of the Future (see page 808) Mr. Raymond Carpmael claimed that, on the railway, civil engineers had prepared the way for further acceleration, but he left the degree it should take to the economic judgment of the general

managers. He was careful to emphasise that the phenomenal speeds of purely racing aircraft are of little significance at present to the world of transport. In our own opinion, the path to be followed is not that leading to the highest speeds that can be attained in any circumstances, but towards closing the gap between the best regular performances and the runners up, thereby raising the general average with no prejudice to present standards of comfort and accommodation.

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Overseas Railway Traffics

There has been another slight improvement in the Argentine exchange, which for the past fortnight has averaged 17·06 pesos to the £, as against a figure varying from 12·29 to 12·35 pesos to the £ for the corresponding period in 1933. Currency receipts have for the most part improved in the past two weeks except that in the 19th week of the present year the Buenos Ayres Western has a decrease of 27,000 pesos, and the Central Argentine one of 263,350 pesos caused by two days' rain. Sterling decreases in the past fortnight have amounted to £90,171 on the Central Argentine, £74,227 on the Buenos Ayres Great Southern, £38,290 on the Buenos Ayres & Pacific, and £31,387 on the Buenos Ayres Western.

Railway.	No. of Week.	Weekly Traffics.	Increase or Decrease.	Aggregate Traffic.	Increase or Decrease.
		£	£	£	£
Buenos Ayres & Pacific ..	19th	64,009	− 19,473	1,296,238	− 266,438
Buenos Ayres Great Southern ..	19th	114,947	− 42,705	2,289,518	− 613,553
Buenos Ayres Western	19th	38,687	− 16,941	770,179	− 231,823
Central Argentine	19th	92,620	− 56,647	2,256,812	− 300,096
Canadian Pacific	44th	540,200	+ 57,000	21,270,800	+1,994,200
Bombay, Baroda & Central India	31st	149,700	+ 4,575	4,606,500	+ 236,325

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United Railways of the Havana

Gross receipts for the year ended June 30, 1934, showed a small increase over the previous year, which must be looked upon as fortunate in view of the very unsettled state of the country during the year. They were, however, insufficient to cover working expenses, which, though showing a small overall reduction, were swollen during the second half of the year by labour legislation, by increased pay to track labourers and increased working time at the workshops, and by making good damage from cyclone and sabotage. The accompanying table compares some operating figures:—

	1933–34	1932–33
Passengers	4,178,450	3,408,356
Public goods, tons	4,881,592	4,983,580
Revenue train-miles	4,268,077	4,392,449
Average miles open	1,365	1,367
Operating ratio, per cent. ..	109·83	113·83
	£	£
Passenger receipts	155,809	146,092
Goods receipts	705,067	683,115
Gross receipts	1,008,039	976,449
Expenditure	1,107,116	1,111,504
Loss on working	99,077	135,055

Competition by road, sea, and air has continued in its former intensity, but encouraging features were the increase in main line passengers and in general merchandise, reflecting the improvement in conditions generally in the second half-year.

* * * *

Sierra Leone Railway

The length of running lines now open on the Sierra Leone Railway is 310 miles on the 2 ft. 6 in. gauge, consisting of the main line of 227 miles from Freetown to Pendembu and the Bauya-Makeni branch of 83 miles. As shown by the report of Mr. F. E. M. Beatley, the General Manager, 1933 proved to be the most disastrous revenue year of any of the four years of depression, in spite of the hopeful prospects in the first six months. The fall in price of palm kernels, the principal revenue-producing commodity, was largely responsible. A decrease in expenditure, however, offset to a great extent the fall in revenue, as indicated in the accompanying table:—

	1933	1932
Passengers	373,161	408,149
Public goods, tons	54,866	66,024
Train-miles	336,385	358,791
Operating ratio, per cent. ..	94·32	93·39
	£	£
Gross receipts	145,594	159,862
Working expenditure	137,323	149,294
Loan and sinking-fund charges	68,399	68,399
Deficit	60,128	57,831

Revised railway rates and low commodity prices have for the time being checked road competition. The through working of Garratt locomotives introduced during the year has resulted in important economies. A beginning has been made on a programme of replacing timber sleepers on crossings by steel sleepers.

* * * *

Diesel Traction in Argentina

A point in Sir Follett Holt's speech which evoked some emphatic "hear, hears" from those assembled at the annual meeting of the Buenos Ayres Western Railway Limited on Wednesday was the indication that the board was looking to diesel traction to bring about a future substantial reduction in the working costs of the company. Fortunately, he said, Sir Brodie Henderson, the company's consulting engineer, who had devoted so much attention to this subject, was able to be with him (the Chairman) on his recent visit to Argentina and to make a study of the company's requirements. There were already two diesel-driven passenger cars, sent out by Armstrong Whitworth, under trial and two further cars were due for delivery next year. The intention was to recapture in the more outlying districts traffic that had been lost to the roads by providing eventually sufficient similar equipment which would give a service more rapid, frequent and economical than was possible with ordinary locomotives and trains. This pronouncement is specially interesting in view of the fact that only last week when presiding at the B.A.G.S. meeting, the same speaker emphasised that company's confidence in diesel power for Argentina; and on which, it will be recalled, we briefly commented at the time.

* * * *

Steel Research

Many and various are the industries which draw upon the steel maker, but few can boast of the ultimate consumption of so much steel as the railways. The motor industry builds thousands of tons of steel a year into its products but only to sell it again in the form of automobiles. The railways have an appetite for steel that is all their own. They do not work it up for use by others but knead it, and pound it, and grind it away in its toughest and most resistant forms, wearing out many miles of track, and many thousands of tyres in the course of a single twelve-month. We think it probable that the properties of steel—its ultimate strength, its resilience, its durability, its capacity to withstand corrosive influences—are of more immediate concern to the railway engineer than to any other user. Of all men, then, the railway engineer should be the one most keenly interested in steel research. In this issue we call attention to the completion by the United Steel Companies Limited of a new central research department. The work of this department deserves to be closely watched and it is to be hoped that the railways will be among the first to send in their own particular problems for investigation in the new laboratories.

Haywards Heath Collision

There was a minor collision at Haywards Heath on the morning of Thursday, November 8. The two trains concerned were the 7.5 from West Worthing to London Bridge and the 7.19 from Brighton to the same terminus. The two trains are joined at Haywards Heath, and the West Worthing portion is then in front. Because of the latter fact many passengers in the Brighton section alight hurriedly, run forward and get into the Worthing portion so that they may get through the ticket barrier more quickly at London Bridge. Presumably by some error of judgment on the part of the Brighton motorman, the rear portion did not stop clear and there was a collision wherein some of the passengers, who were standing up ready to alight, received slight injuries. As it is generally known that this section of the Southern Railway is equipped with automatic signals it should be added that Haywards Heath station is protected by track-circuit-controlled signals, operated from the Station signal-box there.

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Filling Naphtha Lamps in Tunnels

On March 30, 1930, a gang of 70 men was engaged in relaying in a tunnel, and, when the men left the tunnel for breakfast, two of the regular gang stayed behind to clean and replenish the naphtha lamps whilst they were out of use. During this time a train passed through the tunnel, and after its passage it was found that one of the men's clothing was on fire, and before the flames were extinguished he received injuries from which he died some ten hours later. The flames had evidently come from the naked lamp he was using to light his work on the other lamps. Mr. J. L. M. Moore, in reporting on the accident, said that he understood that the question of providing special lights for use whilst naphtha lamps were being filled had been under consideration for some time. This question has now been revived by Mr. Moore as he has had to inquire into a similar case—fortunately not fatal—in another tunnel on the same railway on November 5, 1933. There, again, a man had a lighter lamp by him whilst he was filling a naphtha lamp and again an express train passed when he was so engaged. From the present report it appears that some months after the fatality in March, 1930, the company concerned reported that lamps burning paraffin under pressure were being introduced for tunnel work but, says Mr. Moore, evidently this new method of lighting has not yet been universally adopted and the highly dangerous practice of using a naked flare lamp to give light when naphtha is being handled still continues.

* * * *

New Locomotives for South Africa

On pages 794-801 of this issue we illustrate and describe in some detail one of fifty locomotives designed by Mr. A. G. Watson, Chief Mechanical Engineer of the South African Railways, and now being built by the North British Locomotive Co. Ltd. These engines are of the 4-8-2 type with two single-expansion cylinders to which steam is distributed by R.C. poppet valve gear. The design conforms to a straightforward modern specification and, as need hardly be added, the workmanship and finish throughout are in accordance with the highest standards. Some of the details of construction as well as the general layout of the components are noteworthy. In the design of the cylinders, for instance, special care has been taken to provide liberal steam passages both for free admission and exhaust. The collection of the steam by means of a long branching pipe with openings projecting upwards is a modern development and, besides ensuring only the driest steam finding its way into the steam pipe, renders the dome, as such, redundant. It can therefore be dispensed with in boilers so large as to leave insufficient clearance. In this locomotive, however, we are glad it has been retained and not replaced by a mere manhole cover, for its absence would spoil the appearance of what actually is a very handsome engine. The crossheads are of a new and ingenious design; built-up pistons, cantilevers for projecting the cab footplate over the front end of the tender underframe, and roller bearings on the front bogies and hind trucks are other interesting features. The placing of this contract in this country is a matter for satisfaction if only for the reason that it is the first large order for locomotives emanating from the Dominion for several years, and the contracting firm is to be congratulated upon having secured the order in the face of severe competition from American and Continental firms.

* * * *

High Speed Steel in the Machine Shop

Railway machine shop methods are very different in some respects from what they were even a few years back, and with the introduction of high speed tool steel the heat treatment and grinding of tools has become a matter of paramount importance. The best tool steel that can be produced will fail to do the work expected of it if improperly hardened and the tools themselves can be ruined by careless treatment during the grinding operation. This latter invariably leaves a coarse surface on the face and a pronounced feather on the cutting edge, both of which act detrimentally when the tool is brought into use. It has been urged, and with reason, that where circumstances permit, all tools should be ground in the tool room by a trained man charged with the responsibility of maintaining the stock in good and proper condition. Honing is recommended for eliminating coarse grinding marks and also the feather edge, such measures adding considerably to the useful life of the tool before regrinding becomes necessary, whilst at the same time greatly improving the quality of the finishing cut. Inexpert handling during the heat treatment and grinding processes may have been excusable in the early days of special steels, but with the knowledge since accumulated there is no reason at all why the results aimed at by the steel makers should be nullified in any degree for such reasons.

* * * *

Progress of Welding on Railways

The practice of welding, after having been approached with great caution and having been the subject of the most careful investigation and experimentation, may now be said to have reached a stage at which its progress is becoming rapid in many directions. An indication of this was given by Mr. Harold Bruff, of the London & North Eastern Railway, in an address last Wednesday night to the Institution of Welding Engineers in London describing the work carried out in the North Eastern Area of his railway in structural welding during the last five years. Many bridges which otherwise would have had to be replaced have been successfully strengthened at a very much lower cost, and more recently new bridges have been built entirely welded instead of riveted with a very considerable saving both in weight and cost. Some of these bridges carry heavy main line traffic and some carry roads over the railway. In addition, structural steelwork in buildings of various kinds has been fabricated by welding in place of riveting with proportionate savings. In the numerous slides shown by Mr. Bruff the greatly improved appearance due to the absence of rivets and the general cleanliness of design was most conspicuous.

Sudan Government Railways

THERE is no direct railway connection between the Egyptian State Railways and the Sudan Government Railways, but communication between Shellal, the southern terminus of the Egyptian State Railways and Wadi Halfa, the northern terminus of the Sudan Government Railways, is provided by steamer services on the Nile owned and operated by the Sudan Government Railways. The main railway system, 576 miles on the 3 ft. 6 in. gauge, runs southwards from Wadi Halfa to Abu Hamed, Atbara, and Khartoum. A branch from Abu Hamed to Kareima serves the Dongola province, and there is railway communication with the Red Sea from Atbara to Suakin and to Port Sudan, where a modern harbour has been constructed. South of Khartoum there are railways to Sennar, Kosti and El Obeid, which connect at Sennar with the railways from Haiya Junction on the Port Sudan line to Kassala, Gedaref and Makwar. The Dongola reach of the Nile is served by steamers between Kareima and Kerma, and south of Khartoum there are river services in the direction of Uganda. The three river service systems are separate units and intercommunicate for traffic purposes through the railways.

The report for the year 1933, which we have recently received from the General Manager, shows that the route mileage of railway open at the end of that year was 2,019 miles on the 3 ft. 6 in. gauge, as against 1,989 miles at the end of 1932, and the mileage of river services operated was 2,325 miles. In addition to railway and river services the administration operates Port Sudan Harbour, power stations, hotels and catering services, mechanical transport and miscellaneous services. All these services together brought in for 1933 a revenue of £E.1,737,142, and a profit of £E.520,241, which compare with £E.1,877,540 and £E.612,704, respectively, for 1932. In 1933 the net profit from steamer services amounted to £E.41,065, against £E.8,758 for 1932, from Port Sudan Harbour to £E.18,079 against £E.19,902, and from hotels and catering to £E.2,726 against £E.401. Figures in the accompanying table refer to railway services only:—

	1933	1932
Passengers	553,716	433,932
Goods tonnage	435,045	430,850
Train-kilometres	2,158,026	2,182,849
Operating ratio, per cent. ..	65·4	60·4
	£E.	£E.
Passenger receipts	200,132	195,275
Goods receipts	962,025	1,135,814
Total revenue	1,301,030	1,466,511
Working expenses	851,060	886,494
Net profit	449,970	580,017

There were increases both in numbers and receipts in the case of first and fourth class passengers, but second and third class travel showed some diminution. Fourth class passengers increased from 323,959 to 448,062 and brought in £E.49,106 against £E.44,727. This increase is largely attributable to the short distance traffic which has been regained to some extent by reduced fares. In goods traffic the heavy fall in revenue as compared with a positive increase in tonnage, is due mainly to a fall in tonnage of those exports which can afford to pay the higher rates and which was not offset by the increase in local traffic mainly carried at very low rates.

The experiment made in 1932 of running overlength trains having proved successful, the practice was definitely established in 1933 under defined conditions. The Gebel Aulia Railway was ready for traffic on May 1. On the Tokar Trinkitat Light Railway the two diesel locomotives put in service have given every satisfaction, the economical results obtained having fully justified their purchase. It is proposed next year to introduce a diesel-electric locomotive for standard track. Mechanical transport was taken over by the Mechanical Department during 1932, and an inspection service was instituted which has proved of great value. Southern river services have shown greatly improved results, due partly to a very decided increase in Belgian Congo traffic via Juba. Traffic on the Blue Nile suffered from the abstraction of higher rated traffic by motor transport competition. On the Halfa Reach there was a satisfactory increase in passenger traffic, partly attributable to official travel to and from the Gebel Aulia dam. There was also a substantial improvement in goods traffic on this reach, due partly to import of materials for the Gebel Aulia dam, and to increases in local and export traffic.

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Railways and Colonisation

IN our issue of August 24 there appeared a review of an important study dealing with the colonisation work of the Illinois Central Railroad. This aspect of a railway's activities would seem to be one of the very few in which the British railways have never been called upon to play an active part. Although they have pioneered in short distance steamboat services, in collection and delivery services by road, and in dock and harbour management, not to mention hotel ownership and local motor bus feeder services, the country was already so comparatively well settled as to eliminate any chance of developing important areas through colonisation work. This same situation was responsible for the higher capital cost of construction as compared with railways in many parts of the Colonial Empire, now, in their manhood, referred to as Dominions, and hand in hand with colonial development often appeared the policy of land grants by the state, provincial or national governments.

The wonderful development work of the Canadian Pacific Railway in this branch of activity immediately springs to mind, but it is not so often remembered that similar policies were undertaken in major or minor degree by railways in other countries, such as the United States, Argentina, and Brazil, not to mention the several Australian States, New Zealand and other countries; indeed the railway can claim to be one of the great civilising and humanising agents of the world, and it would be a pity to-day, when such problems as rail and road co-ordination and the development of diesel traction hold the limelight, if this form of activity, which in some countries still continues to an important extent (as for instance in the case of the South Manchuria Railway) were to be completely lost sight of.

Among recent examples of the settling effects of railway construction upon a population may be instanced the Khyber Pass railway and the extensions of many African lines into the interior of the once dark continent. Our thoughts are directed to this question in part through the problem, so frequently referred to in reports from overseas, of the financial results attendant upon the construction of developmental lines, a point touched on, for instance, in recent Australian and New Zealand reports and, as regards the fringe of it, in the recently released report of the commission headed by Sir Guy Granet in South Africa, in part also by the publication of a little pamphlet by the Illinois Central Railroad, entitled "Trails to Rails." This excellently produced little work by Carlton J. Corliss has made use of the book by Professor Gates, referred to above, but, profusely illustrated as it is, it is intended for a totally different purpose, having been widely circulated to the schools of Illinois as a means whereby the younger generation may learn something of the part transport has played in the development of that important State, with its nodal point of Chicago,

the world's greatest railway centre, whence no fewer than thirty railways radiate. It may be that our own railways might find it profitable to issue somewhat similar pamphlets suitable for those of school age, pointing out the changes wrought by railway construction during the last century. Bus companies have not neglected school children, and it is possible that the railways might find such public relations work equally profitable.

* * * *

Should Scientific Progress be Suspended?

IN common with nearly every other responsible pronouncement nowadays, the recent presidential address of Mr. John T. Batey to the North-East Coast Institution of Engineers and Shipbuilders referred to the tremendous advance in machine production and to the novel situation which has consequently come about. As Mr. Batey said, for the past hundred years or so increased production, resulting from the introduction of machinery, had always been counterbalanced with comparatively little delay by increased consumption. In recent times, however, technical progress had obtained a lead which found no practical comparison in the economic history of the nineteenth century. It had, said Mr. Batey, become the most outstanding phenomenon of these phenomenal times in which we live. To engineers and shipbuilders these conditions presented a problem which was very much their concern. "Are we," he said, "to go on with the advancement of the science of engineering and shipbuilding, or are we to make the obstruction of technical progress our task; or are we just to fade out of the picture?"

Mr. Batey poured the ridicule it deserved upon the suggestion, which is the logical outcome of the present moves to restrict production, that scientific progress should be suspended. There would, he said, still be individuals to cope with. "An engineer is an engineer in spite of himself, and there would always be mechanical progress, at least until his race was exterminated. The advance of science is so inevitable that for all practical purposes we may regard it as one of the laws of life." The other suggested solution of the dilemma, that of using the mechanism of the money system properly to distribute the results of scientific progress for the benefit of the whole community by some such means as a national dividend, seems to us to be inevitable, and the sooner it is seriously examined by all the responsible authorities the better.

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Entre Rios Railways

NOTWITHSTANDING acute road competition and damage by locusts, gross receipts of the Entre Rios Railways for the year ended June 30, 1934, improved by £26,911 or 3·5 per cent. over those of the previous year. Cereal crops on the whole were satisfactory, but their slow export gave every opportunity to road lorries to carry the grain to adjacent ports for shipment and consequently enabled them to compete keenly for import traffic. Wheat and linseed escaped serious harm from locusts, but other crops, fruit plantations and grazing lands suffered considerably, and the commercial and financial situation showed little improvement. Following a reduction in working expenses totalling £233,840 in the two previous years, a further decrease of £19,742 or 2·7 per cent. was obtained and every economy possible continues to be enforced. The low net profit on working, coupled with the exchange loss of £57,259 on remittances, has precluded any payment on account of debenture interest, postponement of which was sanctioned in April, 1933, and the result of the year's working is a debit balance of £185,847. Some operating figures are compared in the accompanying table:—

	1933–34	1932–33
Passengers	260,043	281,706
Public goods, tons	644,598	604,467
Ton-km. (goods and livestock)	210,718,330	210,224,801
Average haul, km.	276	307·8
Operating ratio, per cent.	89·63	95·26
	£	£
Passenger receipts	132,630	138,903
Public goods receipts	457,460	445,741
Gross receipts	805,833	778,921
Working expenses	722,235	741,977
Net receipts	83,598	36,944

Passenger numbers declined 7·7 per cent. and their receipts 4·5 per cent. A scheme has been prepared for the complete reorganisation and modernisation of the Entre Rios provincial passenger service by the substitution of motor coaches for all trains connecting the various lines in the province and by the provision of fast day trains between it and Buenos Aires. Amongst the causes preventing the increase in goods traffic from being larger was the smaller orange harvest in the Concordia Zone and in Corrientes. The cuts in salaries and wages introduced in January, 1933, remain unchanged. The cost of locomotive fuel increased from £54,391 to £63,153, but there were substantial decreases under general charges and miscellaneous expenses.

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Railway Freight Rebates

THE Railway Rates Tribunal will once again be faced with a somewhat difficult problem when it begins on November 19 its fifth annual review of the operation of the Railway Freight Rebates Scheme under the provisions of the Local Government Act, 1929. Under this Act the railway companies were relieved from the payment of three-fourths of the local rates on railway hereditaments upon condition that similar sums are contributed to a Railway Freight Rebates Fund, through which they are utilised to assist trade and industry by means of rebates from the railway rates on certain traffics enumerated in the Eleventh Schedule to the Act. When the rebates for the year ended September 30, 1934, were settled in November, 1933, it was anticipated that they would absorb £4,317,000 and that there would be a surplus of £778,659 in the fund which could be carried forward to the year 1934/5. The uncertain prospects of the country's trade made it extremely difficult in November last to forecast the tonnage of the various classes of selected traffics which were likely to pass by railway during the ensuing twelve months and, in fact, the estimates have proved to be on the low side. As a result, the amounts paid out in rebates during the period amounted to £4,697,545, of which £3,277,513 was in respect of coal class traffic, £844,704 on agricultural traffics and £575,328 on other selected industrial traffics. The surplus remaining in the fund at September 30, 1934, was, therefore, £555,970, a reduction of £222,689 compared with the position existing at the end of September, 1933.

While, *prima facie*, the position of the fund would, except for any substantial increase in the volume of railway traffics likely to pass, enable the tribunal to order the continuance of the rebates at their present level, its decision must necessarily take into consideration the views of the companies regarding the re-valuation of their undertakings which is now being carried out under the provisions of the Railways (Valuation for Rating) Act, 1930. At three previous hearings the railway companies have indicated that, in their judgment, the revised valuations would result

in the ultimate rate relief payable to the fund annually being in the region of one-half of the present sum.

The draft valuations already published, however, show a substantial increase in the proposed assessments rather than the anticipated decrease, but these, of course, are still open to objection by the various interests concerned and may be considerably amended before they are finally settled. In any case the railways adhere to their former view and have formally advised the tribunal that, although it is not possible to say when the valuations will finally become operative, in the opinion of their advisers the total rate relief of the railway companies in respect of the year ending September 30, 1935, will not exceed a sum equal to one-half of the rate relief estimated for the purpose of calculating rebates and, indeed, may well be less than one-half. A further point is that when the values are finally determined they will be substituted for those appearing in the valuation lists upon which the rates paid by the railway companies since April 1, 1931, were levied. When this has been accomplished, any over-payment or under-payment of rates will be payable to or by the railway companies. In these circumstances it remains to be seen whether the tribunal will allow the freight rebates to remain at their present level or modify them in order that a substantial sum may be retained in reserve pending the final settlement of the new assessments.

LETTERS TO THE EDITOR

(*The Editor is not responsible for the opinions of correspondents*)

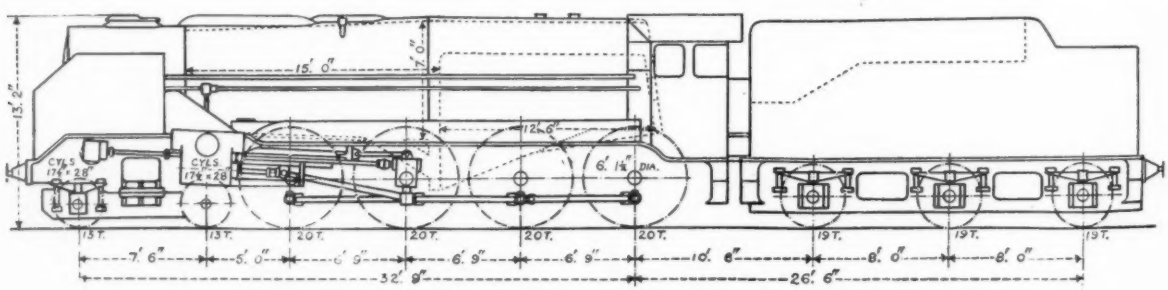
Steam Locomotive Development

390, Wakefield Road, Huddersfield.
October 30

To the Editor of The Railway Gazette

Sir,—During recent years developments in steam locomotive practice have been numerous and far-reaching, and it is a matter of some interest to outline the design of an express locomotive which shall combine, so far as possible, the features which have proved outstandingly successful.

Perhaps the most striking results, from the point of view of performance, are those achieved by the Paris-Orleans rebuilt Pacifics, the Nord 2-8-2 tank engine and the Paris-Orleans 4-8-0, described recently in The Railway Gazette of April 8, 1932, March 17, 1933, and July 14, 1933. The last named have shown that eight coupled wheels of relatively small diameter need not prevent the attainment of express speeds, and accordingly, as an alternative to the 2-8-2 wheel arrangement adopted on the L.N.E.R., and a natural modification of the Gresley Pacific, a 4-8-0 design is suggested as a means of concentrating a powerful machine on to a comparatively short wheelbase. The accompanying diagram shows such a locomotive, proportioned to suit British loading gauge requirements.



The 4-8-0 wheel arrangement involves the use of a long, narrow firebox, associated with relatively short tubes—features, incidentally, of the Nord Pacifics. In the proposed design the steeply-inclined grate would be shaken continuously at a widely adjustable rate by mechanical means, so that fuel shovelled on to the fire within 3 ft. or 4 ft. of the firedoor would be fed by gravity towards the front of the box. An external pipe would connect the underside of the boiler barrel to the bottom of the front water-leg of the firebox and would supply water to the lower limb of the foundation-ring without causing the confusion of currents which must occur in the front water-leg of conventional design. The firebox would contain a Nicholson thermic syphon, and a steam-collector of the Gresley type would be used. After passing through an A.C.F.I. heater, the feed-water would enter the boiler through the steam space, as in G.W.R. practice, and would run forward over an inclined tray before falling vertically near the smokebox tubeplate. The combined effect of the forward down-feed, the external pipe, the thermic syphon, and the inclined foundation-ring would be to produce a strong circulation of water, obviating risk of local overheating and conducing towards free steaming. To minimise weight in the boiler, nickel steel and welded construction would be employed wherever practicable.

Single-expansion would be adopted, four cylinders driving the two leading coupled axles. The inside cylinders would be horizontal but the outside cylinders would be inclined to clear the trailing wheels of the bogie, which would be of the G.W.R. " King " type. Crossheads of the three-bar pattern and high-tensile steel motion work would be used in the interest of weight-reduction.

In order to obtain maximum tractive effort from the available adhesion weight and maximum draught induction from the exhaust steam, the cranks would be arranged on the 8-heat principle. The cylinders would receive and discharge steam through separate piston valves of the Cossart type as usual in the Nord 2-8-2 tank engines. The valves would be disposed with axes parallel to the cylinder centre-lines, and would be controlled by rotary cams arranged on the A.L.E. system, rocking levers being eliminated so as to reduce inertia and wearing of parts. Consequently, I propose the use of Cossart valves with axes parallel to the cylinder centre-line or, in other words, the R.C. arrangement modified by the substitution of double-ported piston valves for poppet valves. The drive to the camshafts would be taken from a return crank through gearboxes all situated on the same side of the engine. The exhaust steam would be discharged through Kylchap double blastpipes.

To ease the fireman's work, the front floor of the tender would be placed at the same height as the firedoor. To obtain adequate coal capacity above this level, the side sheets and copings would follow the loading-gauge limits,

and a steam-cylinder-operated pressure-plate would sweep coal from the rear bunker space into the self-trimming front portion. A power operated firedoor, under pedal control, would be used to minimise the entry of air to the firebox when firing is in progress. The engine footplate would be extended backwards so that the fireman need take no foothold on the tender or a connecting plate when firing.

The approximate leading dimensions, additional to those given on the diagram, would be:—

Heating surface—	
Firebox (including thermic syphon)	300 sq. ft.
Tubes	2,100 sq. ft.
Superheater	650 sq. ft.
Total	3,050 sq. ft.
Grate area	42 sq. ft.
Working pressure	280 lb. per sq. in.
Tractive effort (85 per cent. working pressure)	55,600 lb.

Judging from the work of the Nord 2-8-2 tanks, the proposed locomotive would be capable of a trailing load of 500 tons up 1 in 200 at 70 m.p.h. with 14 per cent. cut-off, and could run such a train at 85 m.p.h. on the level, so that its economical rating would leave a wide margin over normal British requirements. When worked hard it could duplicate the extraordinary performances of the P.O. rebuilds and would thus have a handsome capacity for time recovery on most present-day British schedules, even with 600-ton trains, the high tractive effort available through eight coupled wheels being particularly valuable for rapid acceleration.

Yours faithfully,
W. A. TUPLIN, M.SC.

London Transport Development Plans

55, Becmead Avenue,
Streatham, S.W.16.
November 10

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—It is to be hoped that the widening on the Metropolitan and L.N.E.R. joint lines between Harrow and Rickmansworth and the electrification to Amersham may improve the train service from Aylesbury to London. Except for the three main line expresses to Marylebone at 12.22, 2.7, and 8.8 p.m., and the 6.22 p.m. semi-fast, after the morning rush hour only slow trains are run, the fastest running to Marylebone and calling at thirteen intermediate stations to Harrow. The time for the 38 miles is between 76 and 80 mins. Aylesbury has a population of over 13,000 inhabitants and deserves a better train service. It would be worth while to run an hourly service to Marylebone calling at stations to Amersham, at Rickmansworth and Harrow, leaving the electric trains from Amersham to deal with the other stations, and thus eliminating the rather inconsistent working now obtaining on this section.

I presume that when the new stations on the proposed extension of the Bakerloo tube to Finchley Road are opened, those on the Metropolitan line between Baker Street and Finchley Road will be closed. But what of St. John's Wood station? Its use is certainly small, but it blossoms out in the summer when crowds go to Lords. It is to be hoped these crowds will be carried speedily to a station, not yet officially proposed, on the tube extension.

No mention has yet been made of including the Chesham branch in the electrical extensions. I sincerely trust this has not been overlooked.

Yours faithfully,
WILLIAM A. SHEPHERD

[We understand that our correspondent's hopes as to the Aylesbury line service will probably be fulfilled, at any rate to the extent of long distance traffic being catered for by non-stop steam trains of the L.N.E.R., and the local traffic dealt with by L.P.T.B. electric trains. It is not the present intention to abandon the Metropolitan Line stations between Baker Street and Finchley Road, but rather to make the tube extension supplementary, and also provide new facilities around the proposed Acacia Road station. We gather that the discontinuance of passenger traffic on the Chesham branch is contemplated, but that no official decision has been issued; in such event Chesham would be served by feeder buses.—ED. *R.G.*]

Railway Speeds

The following letter to the Editor of *The Times* appeared on Monday last:—

The British Railway Stockholders
Union Limited,
25, Victoria Street, S.W.1

SIR,—In an article on the Report of the Royal Commission on Transport which I contributed to THE RAILWAY GAZETTE in 1931 (June 12) I illustrated the need for faster trains, with a table showing the journey time between London and 10 representative centres over a period of 16 years. My table began with 1914 and terminated with the summer service of 1930. To this table I added a column of schedules, which I suggested were reasonable, having regard to the importance of the traffic and the difficulties of the route. The column last mentioned came in for a certain amount of criticism from gentlemen who informed me that my demands upon the companies were extravagant. Recently it occurred to me to hunt up this article and to compare my counsel of perfection with what the companies have actually achieved during the three years that have intervened since the article was written. The result is not uninteresting.

Except that I have not reproduced the figures for intermediate years, my table is given precisely as it originally appeared with, of course, the addition of a column showing the best service during the past summer.

SCHEDULES.—LONDON TO IMPORTANT CENTRES

——	Miles	1914	1930	Schedule Suggested	1934
		H. M.	H. M.	H. M.	H. M.
Liverpool ...	193·7	3 35	3 35	3 20	3 20
Manchester ...	188·5	3 30	3 30	3 15	3 15
Aberdeen ...	539·7	11 05	11 40	10 00	11 20
York	188·2	3 35	3 30	3 15	3 15
Sheffield ...	164·7	2 57	3 06	2 55	3 00
Norwich ...	115·0	2 26	2 35	2 05	2 24
Southampton ...	79·3	1 38	1 29	1 25	1 28
Eastbourne ...	65·8	1 25	1 25	1 12	1 20
Margate ...	72·0	1 30	1 33	1 30	1 30
Hastings ...	62·0	1 30	1 37	1 15	1 32

I did not include in my table stations on the G.W.R., as the schedules of that company in 1930 were already excellent. Even these, however, in many instances have been improved on. But of the towns given it will be observed that the two served by the L.M.S. have each attained my schedule. Of the three towns on the L.N.E.R., York has attained the schedule and Sheffield is only five minutes behind, while Norwich, although still 19 minutes behind a possibly too exacting a schedule, has actually gained 11 minutes on 1930. Aberdeen, served by both the L.M.S. and the L.N.E.R., is so largely a night journey that my schedule was probably uncalled for, although I still think it might be tried with advantage during the long summer days. Of the four southern towns, Margate has attained my schedule, Southampton is only three minutes behind it; Eastbourne and Hastings, however, are unfortunately definitely unsatisfactory cases. The modern Southern locomotive could bring Hastings within, at any rate, one hour and 17 minutes of London, and the diesel coach, to which this union has urged the companies to devote attention, could complete the journey in 60 minutes!

None the less, the table supports the case of those of us who claim that our railways once again deserve well of the travelling public.—I am, Sir, yours very truly,

ASHLEY BROWN,
General Secretary

PUBLICATIONS RECEIVED

World Economic Survey, Third Year, 1933-34. Geneva: Economic Intelligence Service, League of Nations. 9¼ in. × 6¼ in. 365 pp. Price 6s.—The third edition of the World Economic Survey, which reviews economic developments between July, 1933, and July, 1934, is a completely new work. The first chapter sets forth the principal events up to the end of March, 1934, and the following chapters give detailed analyses of the main economic and financial developments. The volume concludes with an estimate of the economic situation at the end of last July.

Handbook for Electric Welders. Edited by J. H. Paterson. 4th edition. London: Murex Welding Processes Limited, Ferry Lane Works, Forest Road, E.17. 8½ in. × 5½ in. 151 pp. Illustrated. Price 2s. 6d.—The fact that this is the fourth edition since 1932 is in itself a recommendation. The book is divided into eight sections, each written by a specialist. In addition to the customary subject matter, there are sections devoted to the applications of welding to special materials, to the strength of welded connections and to systematic control and costing. The style will appeal more to the executive and the student than to the young welder, but the treatment is none the less lucid and, in the strictest sense, elementary. The attitude to welding processes other than by the metallic arc is strictly fair throughout. The printing, the illustrations and the binding (which accommodates itself to the jacket pocket) all go to complete an exceptionally good half-crown's worth. The handbook is so planned that it might be considered not to need an index. We think that it deserves one.

Transactions of the Newcomen Society, Vol. XIII, 1932-33. London: Printed for the Society by the Courier Press, Leamington Spa. 10 in. × 7½ in. 211 pp., plus 24 pp. illustrations on art paper. Price 20s.—During the year under review the Trevithick Centenary Commemoration took place and Mr. L. St. L. Pendred, M.I.Mech.E., delivered a eulogy on the great pioneer of high-pressure steam at Dartford parish church. This is reproduced in the present volume of Transactions, which also contains a paper of very great railway interest entitled "The Genesis of the Multiple Unit System of Electric Train Control," by the late Dr. Frank Sprague. As a true account of American hustling, Dr. Sprague's story puts fiction in the shade. Under the pressure of other business, Dr. Sprague gave himself in 1898 only 21 days in which to develop the details of the system and put a train in operation in Chicago. Incidentally, the other business was the obtaining of a £90,000 order from the Central London Railway for 49 passenger lifts. (Reference to this was made in an editorial note in our issue of November 2, when we recorded the death of Dr. Sprague.)

Mechanical transport forms the subject of two more papers, "The Centenary of the London Motor Omnibus," by Mr. Charles E. Lee, Chairman of the Omnibus Society, and "Motor Omnibuses a Century Ago," by Mr. C. F. Dendy Marshall, M.A., M.I.Loco.E. The early motor omnibus was, of course, steam-driven, and interesting plates are given showing the details of some of the more successful types. Illustrated papers dealing with old pumping and mill machinery, with early American bridges, with the 1825 steamship *Enterprise*, and with an interesting tour of important workshops made by an engineer in 1821, fill the bulk of the remaining pages.

Post Office, 1934. London: General Post Office. 12 in. × 10 in. 143 pp. Price 1s.—The annual reports of its activities formerly published by the Post Office were discontinued in the early years of the great war, but so much progress and change has taken place since then that the time has been judged opportune for the appearance of another record of achievement, less comprehensively detailed than its predecessors but at the same time more readable. Such is the object of the volume under review, as stated in an introduction by the Postmaster General.

Some of the most notable developments in connection with the carriage of mails have taken place within the past year alone, and these are outlined in a chapter on inland postal services. The granting of Post Office contracts to internal air lines is an outstanding example, and another effort towards accelerated communication was also made within the same period, when the Railex letter service was inaugurated on January 1, 1934. The opening of the Mersey Tunnel (Queensway), too, has greatly improved the postal facilities for the important industrial and residential area of the Wirral peninsula. The whole business of inland letter transport is reviewed in this chapter, which incidentally throws new light on the nation's letter-writing habits. The spate of correspondence on a wet Sunday, for example, causes considerable apprehension to the Post Office staff.

A short section on Imperial and international postal communications, which have been more profoundly revolutionised by flying than have internal services, is followed by chapters dealing with telephone and telegraph progress by landline, cable, and wireless. The rôle of the Post Office in wireless broadcasting and social services is also described. But perhaps the chapters most symptomatic of the age are those dealing with Post Office buildings and public relations. In replacing drabness by graceful form and official reticence by intelligent publicity, the organisation has shown its determination to occupy a respected place among public services.

Winter Sports.—The 1934–35 edition of the complete guide to Swiss winter sports facilities published by Thos. Cook & Son Limited is now available. A two-page map of the country showing the principal resorts and railway connections and a list of sleeping car trains are useful features. The illustrations attain the high standard one expects from such a source, and in many cases add to their allurement by a novelty of composition which is too often missing in the conventional snow scene. We have also received from the same firm an attractively produced folder advertising party travel to the leading Swiss centres at specially reduced rates. The inclusive charges quoted provide for third class rail travel and second class on steamer. Passengers may travel second class by train on payment of a supplement.

Tangic Dieheads.—The Herbert patent tangic self-opening diehead is made in two styles, namely, for stationary or revolving spindles. The stationary type is made in three sizes, ⅜ in., ¾ in., and 1¼ in., and the rotary type in one size only, ⅜ in. The tangic diehead has been designed to supplement the well-known Coventry diehead introduced in 1901. The latter is used throughout the world and many makers of capstan and turret lathes and automatics have adopted it as a standard attachment for their machines. Alfred Herbert Limited, Coventry, has recently issued a conveniently sized publication entitled "The Book of the Tangic Diehead." Its 116 pages fully describe and illustrate the details of the tool and the varied uses to which it can be put.

Gang Trolleys for Railways.—We have received from Ransomes & Rapier Limited a new illustrated brochure dealing with R. & R. gang trolleys and inspectors' cars. The firm has been engaged in the manufacture of these vehicles since its inauguration more than 65 years ago, and there is an interesting page in the catalogue showing early units, including a sail-propelled design of 1869. Detailed specifications are included of two representative trolleys from the present range. Both are designed to carry a load of eight or ten men, with an allowance of 50 lb. a head for tools, and are provided with a coupling bar and shock absorbers for the attachment of trailers. They will attain speeds up to 35 m.p.h. on the level. The more powerful trolley has a Ford 24-h.p. engine and transmission is through a bevel gearbox. A twin cylinder air-cooled engine and friction drive are fitted to the other type. Shoe type brakes on all four wheels and conveniently grouped controls are a feature of both, as are the sturdy and adequate handrails provided to facilitate lifting the machines clear of the track.

THE SCRAP HEAP

WEST HIGHLAND LINE IN THE MAKING

Mr. D. Mackay, Roy Bridge station, writes to the *L.N.E.R. Magazine* as follows:—

Free passes were issued to tradesmen employed by the contractors, Lucas & Aird, and entitled the holder to travel in their engineer's saloon. The pass is signed by the resident engineer, Mr. W. Granger. It has been handed to me by the party to whom it was issued, John McPherson, who was at the time employed as a joiner with the contractor. It shows that in these happy-go-lucky days special permission had to be received before travelling even on contractors' engines and trains. The following is the text of the pass:—

Fortwilliam, May 26, 1891

To the Engine Driver.

Please pass John McPherson and friend between Roy Bridge and Fort William and back. They travel at their own risk. Available for one journey only.

W. Granger

Right: An adventurous cat which set out from Liverpool on the buffer of an L.M.S. London express but, after a 60-mile ride, was discovered at Stafford and taken in charge by the refreshment room staff

Below: One of the former London, Chatham & Dover Railway Company's London–Continent Advertisements, reproduced from an American travellers' guide of 1894

IN A LOCO. WORKS

Visitor (one of a party being shown round) to Foreman: "Does a turbine locomotive want a boiler?"

Foreman: "I couldn't say. It has to have one anyhow."

* * *

U.S.A. RAILROAD NICKNAMES

The time-honoured custom of nicknaming American railroads according to their initials is receiving notice in a Chicago newspaper at the present time. The most recent to be noted are the Peoria, Pekin & Jacksonville as the "Push, Pull & Jerk"; the Toledo, Peoria & Western as the "Tired, Poor & Weary"; the Cincinnati, Portsmouth & Virginia" as the "Coat, Pants & Vest"; the Lake Erie & Western as the "Leave Early & Walk"; the Zanesville & Western as the "Zealous and Willing"; the Toronto, Hamilton & Buffalo as the "To Hell & Back"; the Susquehanna, Bloomsbury & Berwick as the "Sweet Bye & Bye," and the Cincinnati, Hamilton & Dayton as the "Charges High & Damned Rough Riding."

* * *

Smith: Have you noticed the funnel on this engine? It's different from the others.

Jones: Yes, I asked what's-his-name about it the other day. He said it was the Kylchap arrangement.

Smith: Good gracious! Rather alarming isn't it?

Jones: So I thought, but he said it was quite harmless, and that they usually referred to it by the first letter of each syllable.

Smith: I see—K.C.—sounds a bit less threatening anyhow.

OVERSEAS RAILWAY AFFAIRS

(From our special correspondents)

Argentine President's arbitration award—Proposed line to connect Valparaiso and Talagante—South African rolling stock being delivered—Prospect of New Zealand constructions—Third class sleeping cars and other developments in Italy

ARGENTINA

Presidential Arbitration Award in the Railway Wage Dispute

The decree embodying President Justo's arbitration award in the Argentine railway wage dispute was issued on October 23. It comprises 8 clauses, of which the following is a summary of the principal ones :—

(1) Salary and wage "cuts" are to remain in force, but are to be regarded as temporary retentions to be refunded when the financial situation of the companies permits.

(2) The short time agreements ("prorrateo") are to be cancelled and replaced by an equivalent reduction in salaries and wages, based on the calculation that every day of short time represents a saving of 3·3 per cent.

(3) No dividends may be distributed to the shareholders until the salary and wage retentions have been returned.

(4) In order to establish the companies' profits, the following items will be considered as included among the expenses :—

(*a*) Ordinary working expenses.
(*b*) The contribution fixed by Law 5315.
(*c*) Sixty per cent. of the percentage fixed by the reglamentary decree of Law 5315 for renewal expenses, provided the companies effect renewals to that amount.
(*d*) Interest on debentures and mortgage obligations in paper pesos at par.

CHILE

The Arica-La Paz Railway

An agreement has been reached between the Chilean and Bolivian Governments to extend until June 30, 1935, the convention between the two republics for the joint administration of this line, which was also referred to in THE RAILWAY GAZETTE of September 7. Messages from La Paz state that the Bolivian Government has passed a law authorising the raising of a loan amounting to 1,300,000 "bolivianos," to be expended on developing and improving the railway services.

Proposed Chilean Railway

A proposal has been submitted to Congress for the construction of a railway 100 km. long, of 1·68 m. (5 ft. 6 in.) gauge, from Valparaiso to Talagante via Casablanca, at an estimated cost of 130,000,000 Chilean pesos (approximately equivalent to £2,781,000 at current exchange rates), to be defrayed by means of a public loan, which the State is to be asked to guarantee. The Compañia Electro Siderurigica de Valdivia, a concern subsidised by the Government, has been approached with a view to ascertaining if it is in a position to supply the necessary materials, estimated to cost about 51,000,000 pesos (approximately £1,091,000), but as that company is stated to be unable to roll steel rails, it is probable that, in the event of the scheme being carried out, the steelwork would have to be imported.

Dynamite Outrages on the State Railways

During the past few weeks several dynamite outrages have been reported at different points on the Chilean State Railways. On September 16, the explosion of a dynamite charge on the line between San Bernardo and Nos stations destroyed about 40 m. of the permanent way. On October 11, a similar incident occurred in the vicinity of Mapocho station at Santiago, when an explosion damaged the track, which was, however, quickly repaired, and little delay was caused to traffic. No personal casualty was reported in either case. An investigation by the railway authorities and the police failed to discover the miscreants, but as there is some unrest among the employees of the State Railways, due to the refusal of the administration to accede to their demands for increased wages and shorter hours, coupled with threats of a strike in the workshops at San Bernardo, it is thought that the outrages may possibly be traced to this source, especially as Communist propaganda has been plastered on the walls in the vicinity of the railway property.

SOUTH AFRICA

Kleinstraat-Matroosberg Loop Line

The new loop line between Kleinstraat siding and Matroosberg, on the Cape Western main line, was opened for traffic on October 15. The construction of this 7 miles 64 chains loop line involved a very heavy cutting three quarters of a mile long and more than 60 ft. deep over a distance of 1,100 ft.

New Rolling Stock

References have previously been made to the ordering from overseas of 50 class 19C locomotives. The delivery of the tenders for these engines has commenced. Eight have already arrived in the Union, while on October 9 another eight were on the water *en route* to South Africa. Of the two thousand four-wheel open steel trucks now under construction in the railway administration workshops, 206 have been placed in service.

GERMANY

Signalling Developments

As the results of the alterations made in the signal arrangements for increased stopping distance between distant and home signals, to allow of speeds up to 120 km.p.h. (75 m.p.h.) on several routes, have proved satisfactory, the German State Railway has decided to make similar alterations next year on a number of other sections, viz.:—

1. Cologne, Düren, Eschweiler.
2. Aix-la-Chapelle, Munich-Gladbach, Krefeld and Neuss.
3. Krefeld, Duisburg and Neuss, Düsseldorf, Gruiten.
4. Löhne, Osnabrück, Rheine, Bentheim.
5. Grosskorbetha, Erfurt, Bebra.
6. Nuremberg, Hersbruck.
7. Hanover, Kreiensen.
8. Marburg, Giessen, Frankfort-on-Main.
9. Hanau, Aschaffenburg, Gemünden, Würzburg, Fürth, Nuremberg.
10. Salzwedel, Uelzen.
11. Wittenberge, Stendal, Magdeburg, Halle, Leipsic.
12. Lehrte, Brunswick, Helmstedt, Magdeburg.
13. Leignitz, Kohlfurt, Görlitz, Bautzen, Dresden.
14. Schwerte, Soest, Paderborn and Cassel-Bebra.

These alterations will necessitate considerable activity in the Signal Department.

NEW ZEALAND

Building Additions

Steady progress is being made with the building programme at the locomotive depot at the Frankton railway yards, and new work to provide additional accommodation for various branches of the Railway Department is now in hand. Frankton Junction is an important marshalling and locomotive depot, 87 miles south of Auckland, and the steady improvement in business is taxing its present capacity. Extensions to the locomotive sheds have been completed, and are in use, while a forward stage has been reached with the erection of a new fitting shop adjoining the main sheds.

Train Service Improvements

So marked has been the improvement in passenger traffic that the Railway Department decided recently to put on a daily express service between Dunedin and Invercargill. Previously this section of the South Island Main Trunk line had been worked by an express service running each way only three times a week. Elsewhere there is a tendency to speed up train services. In the Auckland district faster runs have been arranged in the north suburban area for certain trains. A passenger car has also been attached to a night goods train to give a connection

between Auckland and Whangarei and 2½ hours have been cut off the time. The arrangement also allows goods to go further north overnight, resulting in a saving of 24 hours in transport to stations in the north of the island.

Another innovation has been the steam heating of a mixed passenger and goods train to the Hot Lakes district. Contrary to the usual railway practice here, but to make heating possible, the passenger cars are now placed next to the engine. This, of course, entails trailing the goods wagons behind, and some inconvenience to the staff, but the heating of the carriages is welcomed by the travelling public.

Uncompleted Lines

When the Government Railways Board was set up in 1931, it closed down on certain sections of new line which, if completed, were expected to prove unremunerative. Now, however, an effort is being made to have two of them completed by private enterprise. One, the East Coast Railway in the North Island, to connect Gisborne with a branch of the main system at Napier, had had £3,600,000 spent on its construction prior to stoppage of work, and it is estimated that it will cost £1,800,000 to complete. The Government is understood to have communicated to a representative of certain London investors the terms upon which the line could be acquired, completed, and operated, and it is believed that an early development will be an inspection of the line by an expert representing the group, who is at present in Australia.

The other line, to connect Picton with the main trunk South Island line at Parnassus, is to be inspected by two representatives of financial interests in England, regarding its developmental and commercial prospects. It is understood that in the event of the outcome being favourable, they would provide by way of a loan at a cheap rate of interest, the money required for the cost of final construction and for rolling stock of modern type. The enterprise would include the financing and taking over of the Christchurch-Parnassus and Picton-Wharanui sections, and the Picton wharf.

SWEDEN

Increased Traffic with Germany

The figures for the passenger and goods traffic on the Trälleborg-Sassnitz route, the principal outlet from Sweden to Germany and the European continent, show a considerable increase this year. For the February-August period, 1934, the goods traffic was 115,600 tons against 100,600 tons for the same period of 1933. The corresponding figures for the passenger traffic were 81,385 and 66,119 persons. During the month of August the passenger traffic was 32 per cent. and the goods traffic about 40 per cent. above the 1933 figures.

ITALY

Third Class Sleeping Cars

The International Sleeping Car Company, which has the monopoly in Italy for the sleeping and dining cars, has under consideration the introduction of third class sleepers. Negotiations with the State Railways are far advanced, and it is hoped that this new service will be introduced very shortly, as well as buffet cars.

Railway Development in the Year XIII

To mark the occasion of the anniversary of the March on Rome, which initiates Annum XIII of the Fascist Regime, the Ministry of Communications has published a *resumé* of the more important works completed during the 12th year by the State Railways. The total expenditure amounted to about £10,000,000, divided as follows (in round figures at the present rate of exchange): Electrification and hydro-electric power plants, £4,500,000; widening and improvement of stations, £1,000,000; doubling and renewal of tracks, £1,750,000; bridges and viaducts, £630,000; signalling, level crossings and telegraph, £770,000.

New Railway Station at Venice

The Ministry of Communications has published the conditions of a competition for the design of a new railway station at Venice. The prize winner will receive 40,000 lire (about £725 at the present rate of exchange), and a further sum of 60,000 lire (about £1,023) will be distributed among the runners-up. The competition is open only to Italian architects. The present station is situated near the junction of the Grand Canal and the lagoon, and dates from the time prior to 1866 when Venice was still a province of the Austrian Empire. The station building is unique with its wide marble staircase leading direct from the main entrance to the Grand Canal, where steam launches, gondolas and motorboats ply like trams and taxis. The station has completely outgrown the present traffic requirements, and an extensive reconstruction scheme, including also marshalling yards and the maritime station, is in course of execution. Venice is connected with the mainland by the railway bridge immediately beyond which is the station, and there is no possibility of lengthening or widening the station, as there is no available space for expansion.

Part of the goods traffic for the mainland has been diverted during recent years to Porto Maghera on the mainland, adjoining Mestre. Before the war Porto Maghera was a small fishing village, but it has now developed into an important industrial town containing about 70 important factories, quays, docks and warehouses. A special coal quay has recently been completed, and very powerful coal discharging plant has also been installed for bunkering purposes, so that Porto Maghera is to-day probably the best equipped port in this respect in the Adriatic or Mediterranean. The State Railways traffic at Porto Maghera amounted in 1933 to over one million tons.

Bridge Renewals under Traffic

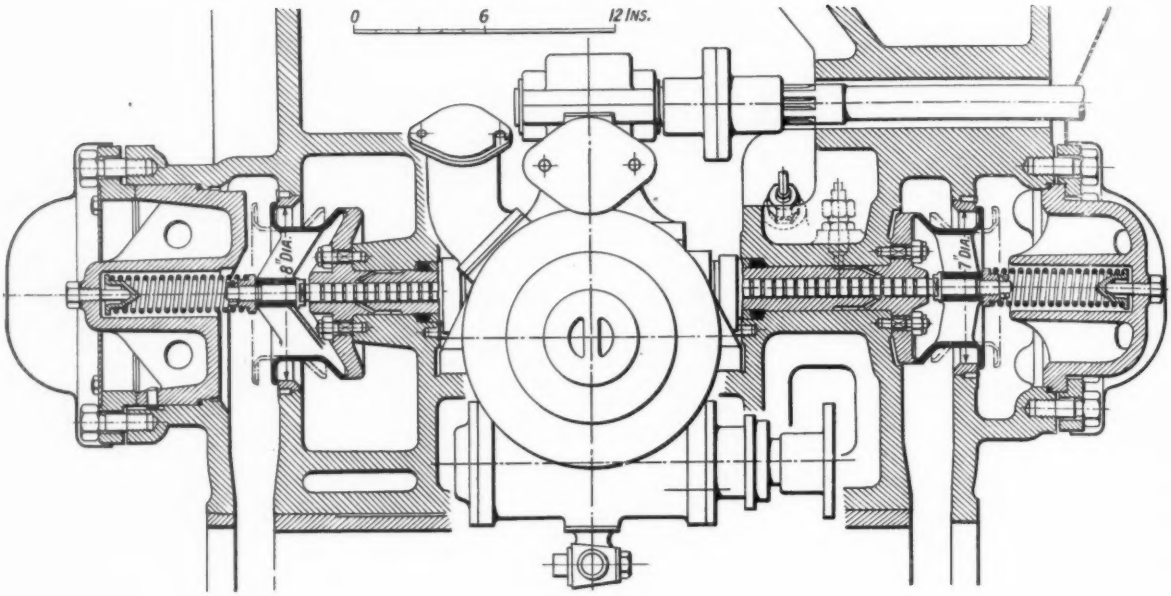
It is announced that [as recorded in spans during the interval between successive trains has become a standing practice on the State Railways. Amongst the latest of these is the new steel bridge over the River Tanaro near Monterchio station, on the Turin-Savona line. The new span has a length of 95 m. (311⅝ ft.) and weighs 350 tons. It was placed in position in 14 minutes. The Secchia bridge on the Modena-Verona line, 87 m. (285 ft.) long, the new span of which weighs 300 tons, was substituted for the old one in 11 minutes.

The hydro-electric power plant of the State Railways at Suviana, about six miles from Porretta on the old Bologna-Florence line, has been completed and is now in operation. This plant was built for the purpose of supplying the new Bologna-Florence Direttissima with current. The dam has a height of 91 m. (298½ ft.), and is the highest in Italy and one of the highest in existence. The reservoir has a capacity of 47 million cu. m. (10,340 million gallons), and impounds the waters of the rivers Limentra and Reno. The power plant consists of three groups of Francis turbines each developing 18,400 h.p., using 20 cu. m. p.s. under a head of 83 m. (272½ ft.), and of three alternators of 20,000 kVA. Current is generated at 4,000 v. and stepped up to 60,000 v. by 3 three-phase transformers of 20,000 kWA. each. The cost of this plant was £2,100,000. Working days on its construction totalled 1,400,000.

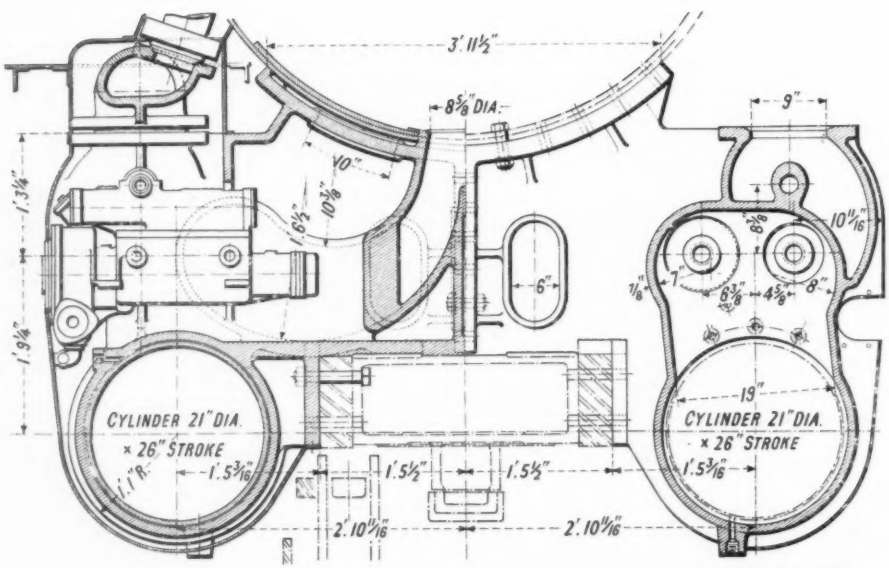
RHODESIA

Branch Line Railcars

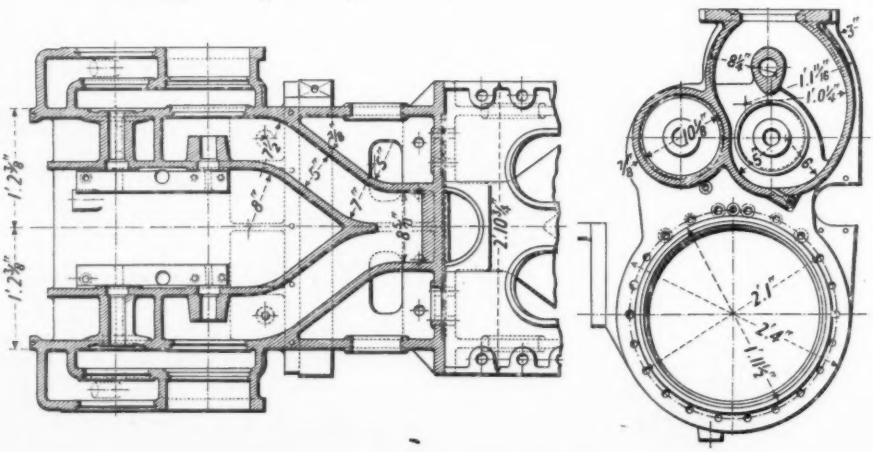
It is announced that [as recorded in our Contracts and Tenders column, October 26.—ED. *R.G.*] an order is to be placed by the Rhodesia Railways for the construction in England of an experimental railcar, to the designs of the Chief Mechanical Engineer, for use on the Salisbury-Shamva branch line. Accommodation for European and native passengers will be provided and for a certain amount of parcels traffic, and the journey will be performed in three hours as compared with the present 7¼ hours by mixed train. The district served by the Shamva branch line is well populated by farming and gold mining communities, and is at present served by two private road motor services competing with the railway. It is probable that the introduction of this railcar will be followed by the operation of similar cars on other branch lines which lend themselves to this form of rapid and economical transport.



Above : Cross sections through poppet valve gear



Left : Cross sections through cylinders



Left : Sections through steam passages

(See article opposite)

NEW 4-8-2 TYPE LOCOMOTIVES FOR SOUTH AFRICA

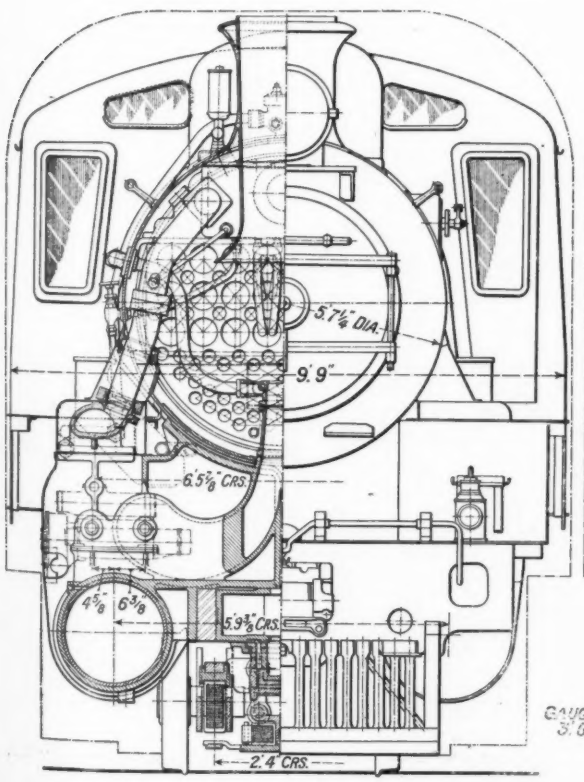
An order for fifty of these engines is now being executed by the North British Locomotive Co. Ltd., Glasgow

THE increased railway traffic recently experienced in South Africa has rendered it necessary for the Government railways to purchase a large quantity of new rolling stock and equipment. The first large contract for locomotives to emanate from the Dominion for several years was secured earlier in the year, in the face of severe competition from American and Continental firms, by the North British Locomotive Co. Ltd., by whose courtesy we are enabled to illustrate and describe one of the fifty 4-8-2 type locomotives which constitute the contract. Several of them have already been shipped to Cape Town.

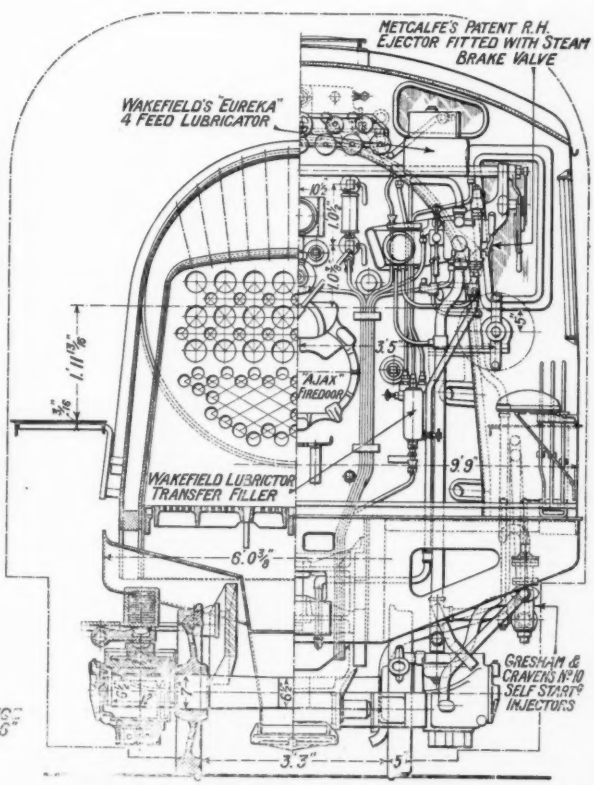
The engines, which are to be known as the 19C class, are being built to the designs and requirements of Mr. A. G. Watson, Chief Mechanical Engineer of the South African Railways and Harbours, and under the supervision of the High Commissioner's Advisory Engineer in London. They differ considerably from the previous engines of the same class, built in Germany. These were fitted with Walschaert valve gear, whereas in the new engines poppet valve gear of the latest R.C. type operated by the R.C. duplex outside drive is used, which type of valve gear is being used on all the engines comprising the contract. Special care has been taken in the design of the cylinders to provide adequate steam passages both for admission and exhaust. The diameter of the steam valves is 7 in. and that of the exhaust valves 8 in. The return crank gearbox units for the main drives are of an improved form, so designed that they can readily be dismantled for inspection purposes. They are carried on the return crank-pins by ball and roller bearings, and bearings of the same type are used for the worm shafts, the intermediate bearings in the main drive and also for the worm shafts in the cam boxes. The whole of the main drive shafting is fully universal and the driving torque is counteracted by a special design of anchor link having grease lubricated spherical bearings.

The reversing gear is of a standard type applicable to all two-cylinder engines fitted with the A.L.E.-R.C. poppet valve gear of the Associated Locomotive Equipment Limited, and, as is the case with the valve gear proper, all parts are self-lubricating. The poppet valves for the distribution of the steam in the cylinders are actuated by camshafts giving cut-offs ranging between 15 per cent. and 85 per cent.

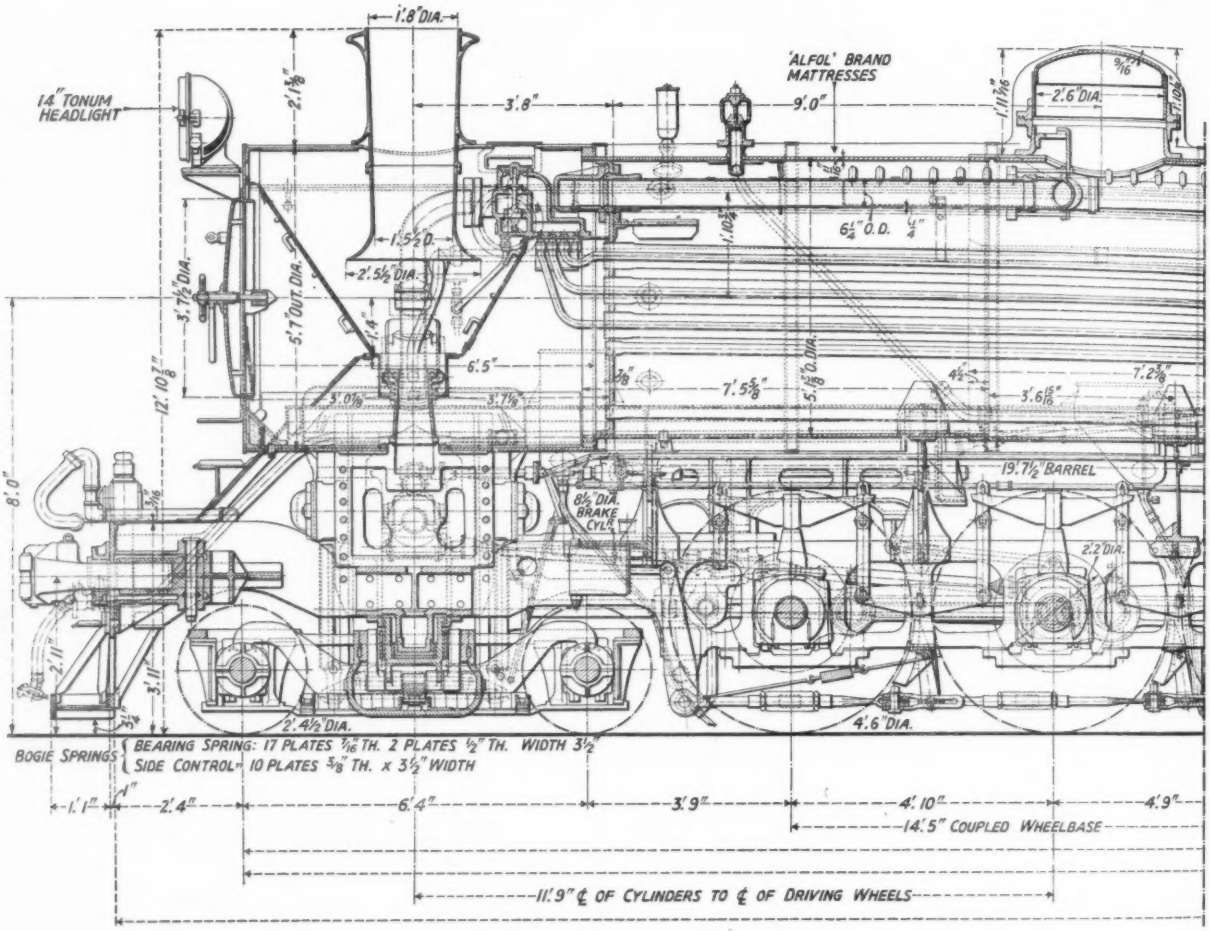
A by-pass is obtained by placing the reversing gear in the mid position, and when so placed all the valves, both steam and exhaust, are lifted from their seatings and, as the follower rollers then run on ring cams, the valves are held stationary. Lubrication of the camshafts and operating gear is by means of an oil bath, and the



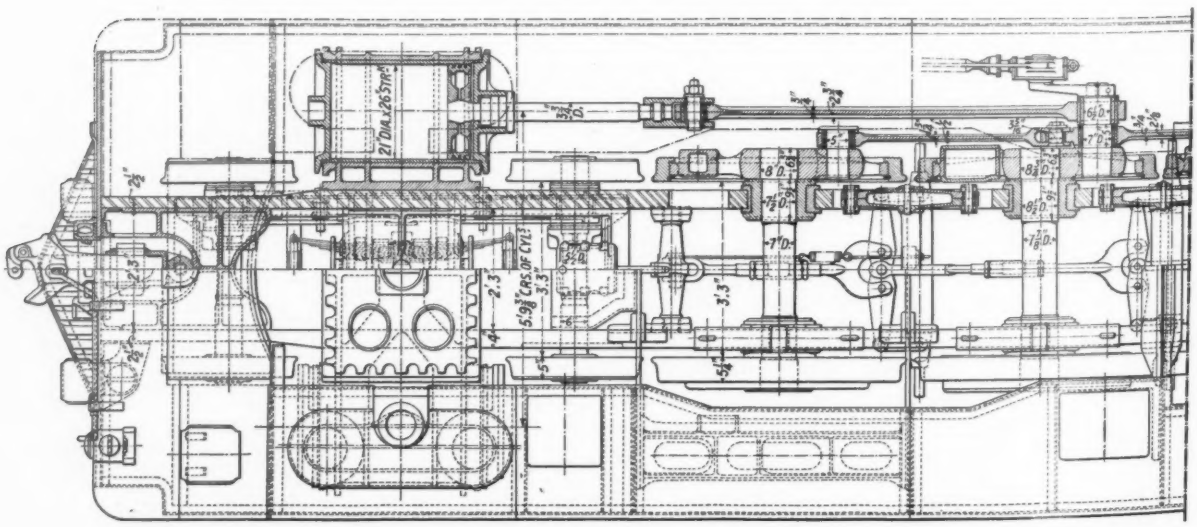
Half transverse section through smokebox and half front elevation



Half transverse section through firebox, and half back end elevation through cab

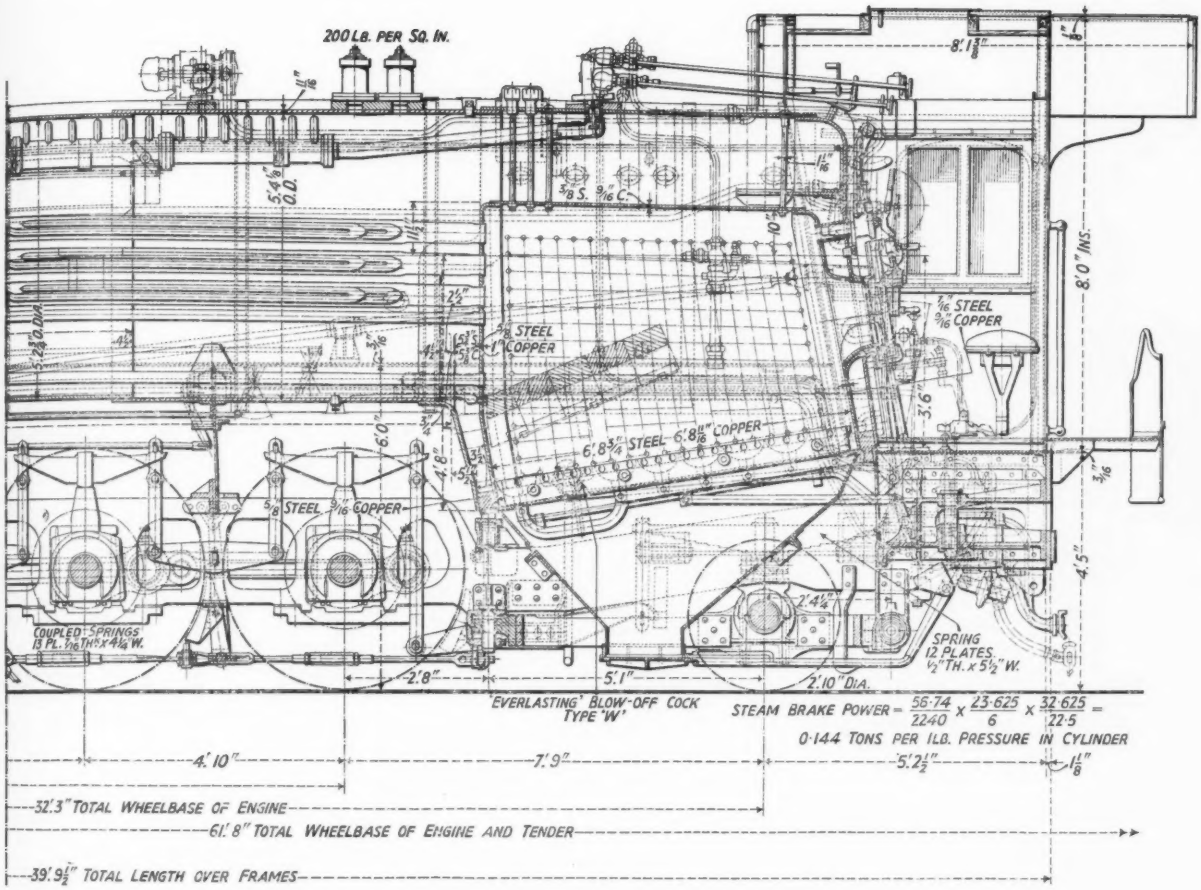


Longitudinal vertical section. Note the steam-collecting

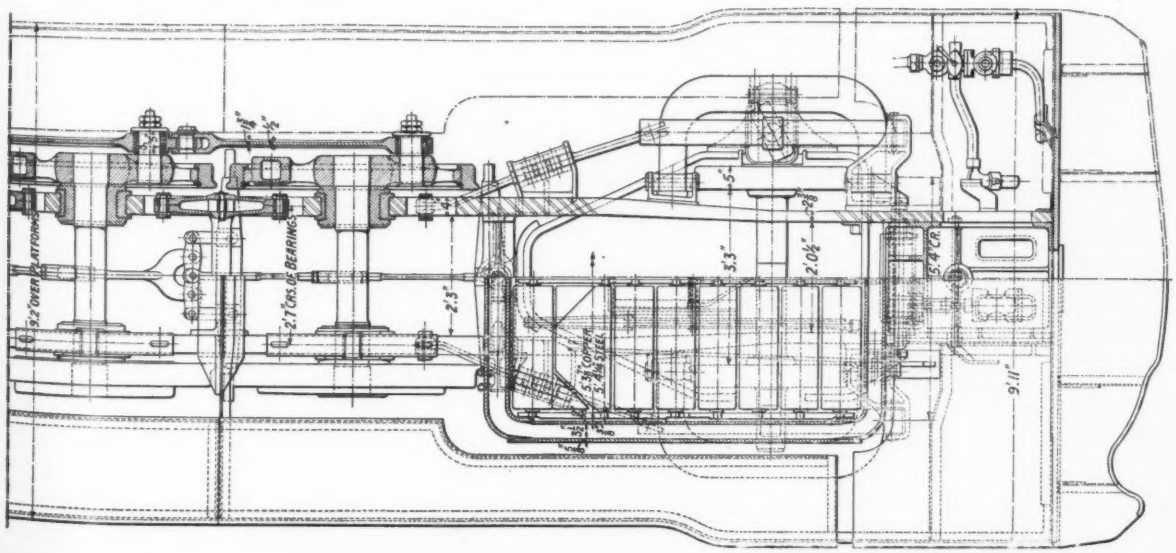


Longitudinal

NEW 4-8-2 CLASS 19C LOCOMOTIVE FOR THE SOUTH AFRICAN

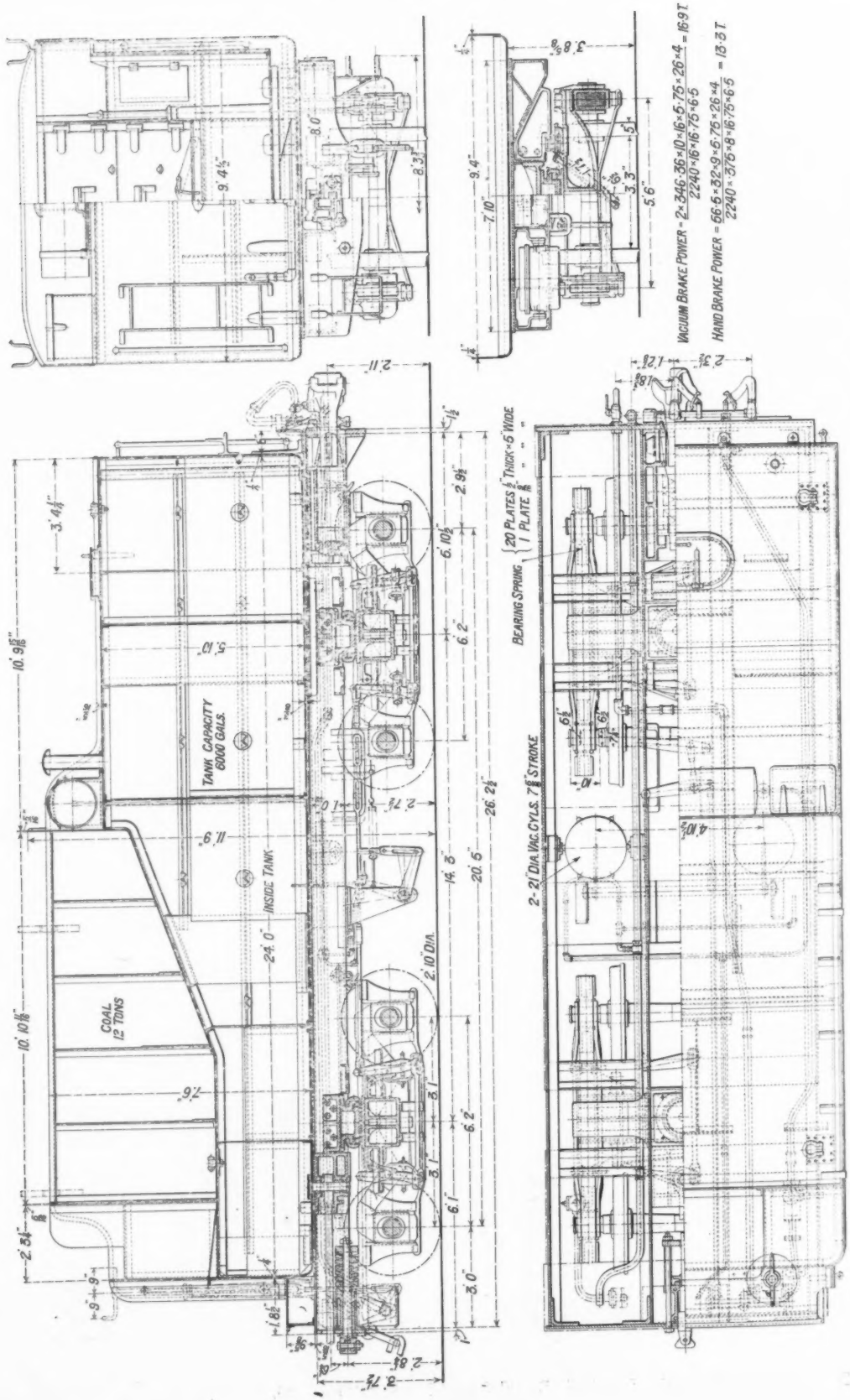


pipes, the smokebox arrangement and the equalised springing

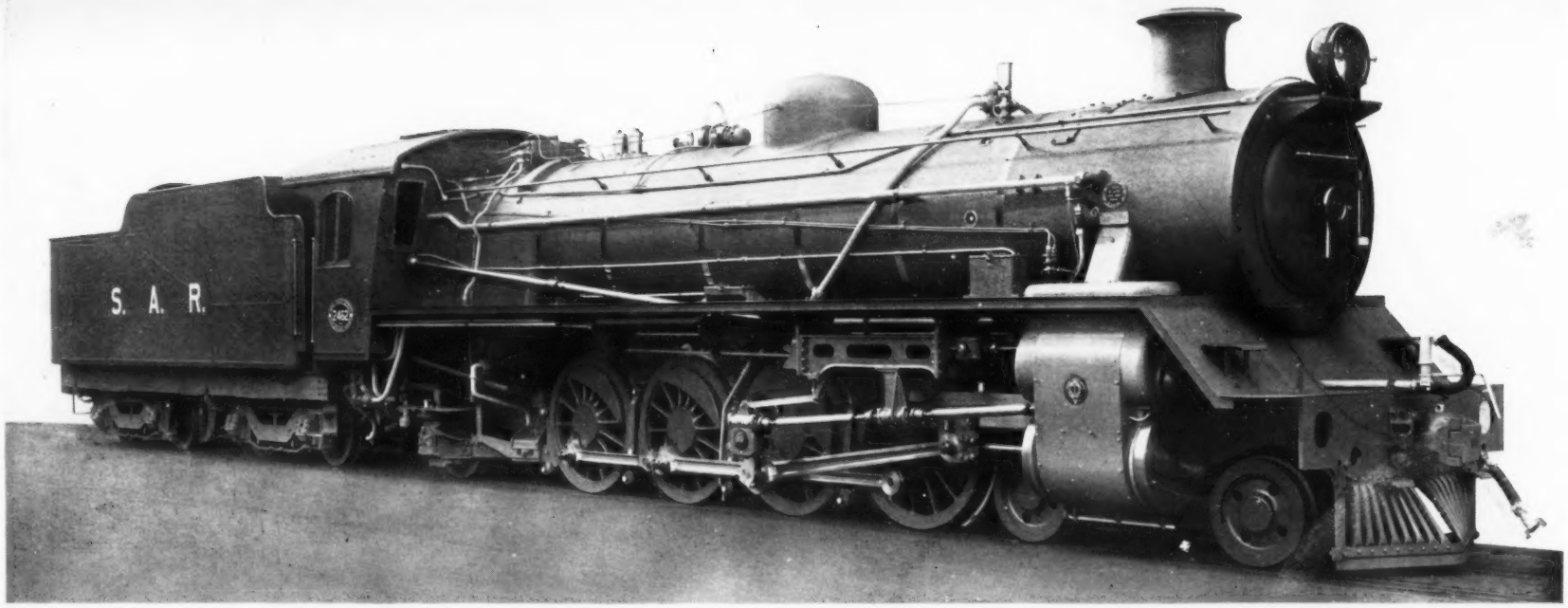


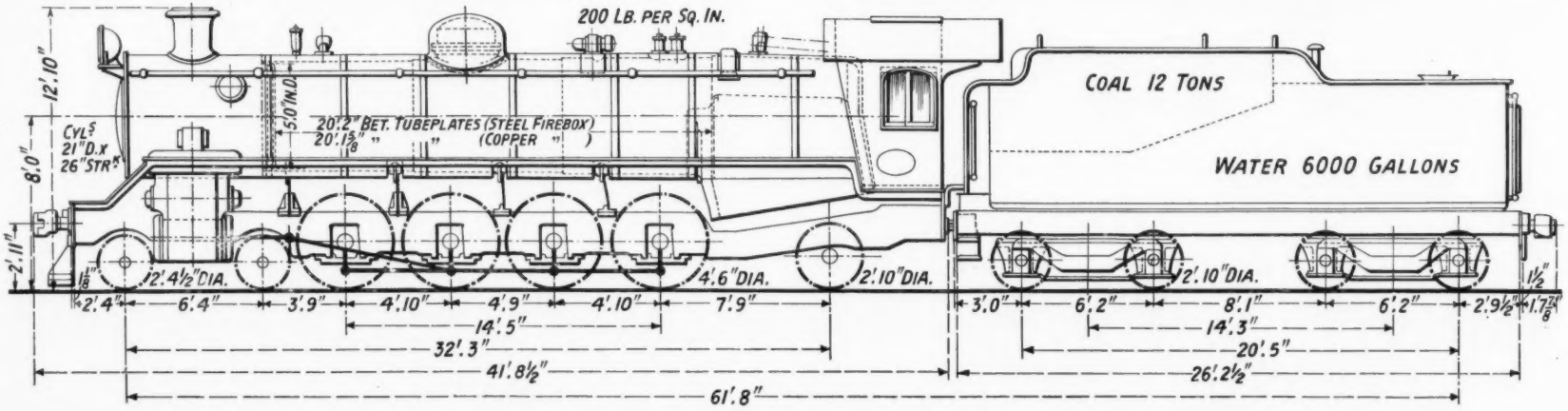
horizontal sections

RAILWAYS, BUILT BY THE NORTH BRITISH LOCOMOTIVE CO. LTD.



Above, longitudinal section and half end elevation from each end; and, below, section and plan of Class 19 C tender for the S.A.R.



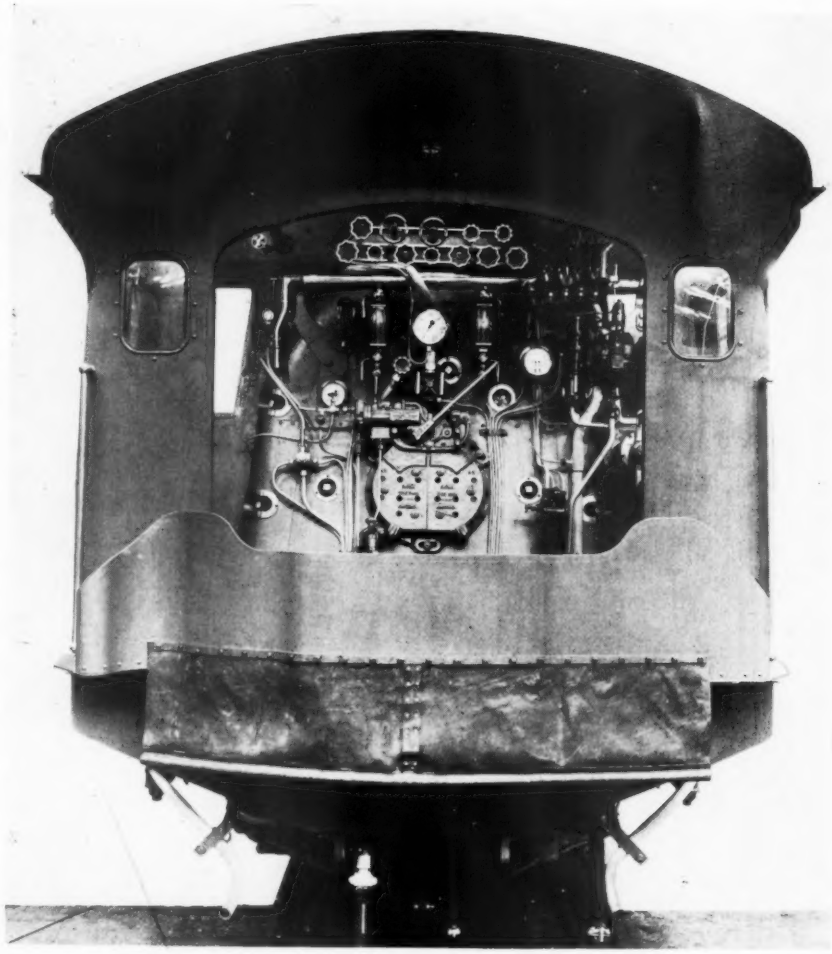


Above, three-quarter side elevation; and, below, outline diagram in side elevation of new 4-8-2 *type,* 19 *C class locomotives, South African Railways*

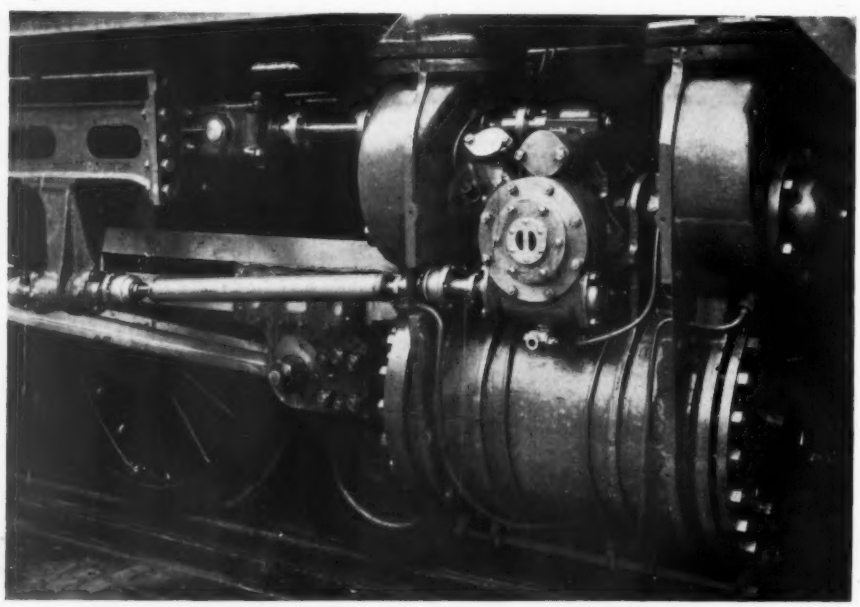
lubrication required for the valve spindles is obtained through connections with the hydrostatic lubricator in the cab.

There are also some other interesting features which involve departures from normal practice, among which the following are worthy of special mention: All the firebox water leg and also the two rows of crown stays near the tube plate are of a special flexible type designed in South Africa and now standardised for all new boilers. The crossheads are of a new design embodying separate cheeks of forged steel, securely bolted together over a double-coned collar on the piston rod, thereby obviating the use of the usual cotter. Built up pistons, manufactured by Wota Limited, in which a double-coned fit is also used, preserve a degree of similarity in the piston rod and crosshead assembly. The trailing truck axleboxes are provided with special thrust bearings attached to the covers which have the advantage of relieving the ends of the gunmetal bearing from the effects of end thrust when traversing curves. The cab footplate is carried on cantilevers projecting over the front end of the tender underframe towards the tank front plate, thereby providing a solid footplate for the engine by eliminating the fall plate.

The photographs and drawings reproduced herewith serve to illustrate some of the principal constructional features of the locomotives, whilst the general views show very clearly their appearance and assembly. Twenty-five of the engines are provided with copper and the remainder with steel fireboxes, whilst eight of the number with copper fireboxes are fitted with Aquacidox anti-corrosive tubes by Howell & Co. Ltd. The superheater is of the M.L.S. type with multi-valve header. Other accessories comprise electric lighting apparatus by J. Stone & Co. Ltd., Whitelegg & Rogers Ajax steam-operated firedoor, and Alliance automatic couplers. A steam brake, arranged to act on all coupled wheels, is fitted on the engine, while vacuum brake equipment is provided for controlling the tender and train. Two of the engines are being fitted experimentally with roller bearings on



Cab view showing rear weather protection and footplate extension



Details of the poppet valve gear

the front bogies and hind trucks, one engine having bearings manufactured by British Timken Limited and the other by the Skefko Ball Bearing Co. Ltd.

The tender, which is carried upon two four-wheeled bogies, has a water capacity of 6,000 imperial gallons and a coal capacity of 12 tons. In working order the engine weighs 80 tons and the tender 67 tons, giving a total weight of engine and tender in working order of 147 tons. The proportion of engine weight available for adhesion is 52 tons. The foregoing weights are to be regarded as approximate only.

The leading particulars are as follow:—

Cylinders (2), diam.	21 in.
,, stroke	26 in.
Wheels, coupled, diam.	4 ft. 6 in.
,, leading bogie, diam. ..	2 ft. 4½ in.
,, trailing bogie, diam. ..	2 ft. 10 in.
Wheelbase, engine	32 ft. 3 in.
,, coupled	14 ft. 5 in.
Height, rail level to boiler centre ..	8 ft. 0 in.
,, ,, ,, top of chimney	12 ft. 10⅞ in.
Boiler, diam. inside minimum ..	5 ft. 0 in.
,, distance between tubeplates	20 ft. 2 in.
,, working pressure	200 lb. per sq. in.
Small tubes, number	76
,, ,, diam.	2¼ in.
Superheater, flue tubes, number ..	24
,, ,, diam. ..	5½ in.
Heating surface, tubes	1,700 sq. ft.
,, ,, firebox	130 sq. ft.
,, ,, total	1,830 sq. ft.
,, ,, superheater ..	390 sq. ft.
Combined total	2,220 sq. ft.
Grate area	36 sq. ft.

[An editorial comment will be found on page 785.]

INSTITUTE OF TRANSPORT EXAMINATIONS.—Permission for the election in certain cases to studentship and graduateship without examination, will expire on September 30, and admission to graduateship will be by examination only. As regards students, the following regulation will hold:—"The Council may elect to studentship a person who is at least 21 years of age, produces evidence of having attained an educational standard equivalent to that ordinarily required of students and is engaged and has had not less than a year's service satisfactory to the Council with one or more of the principal transport undertakings or other organisations recognised as such by the Council."

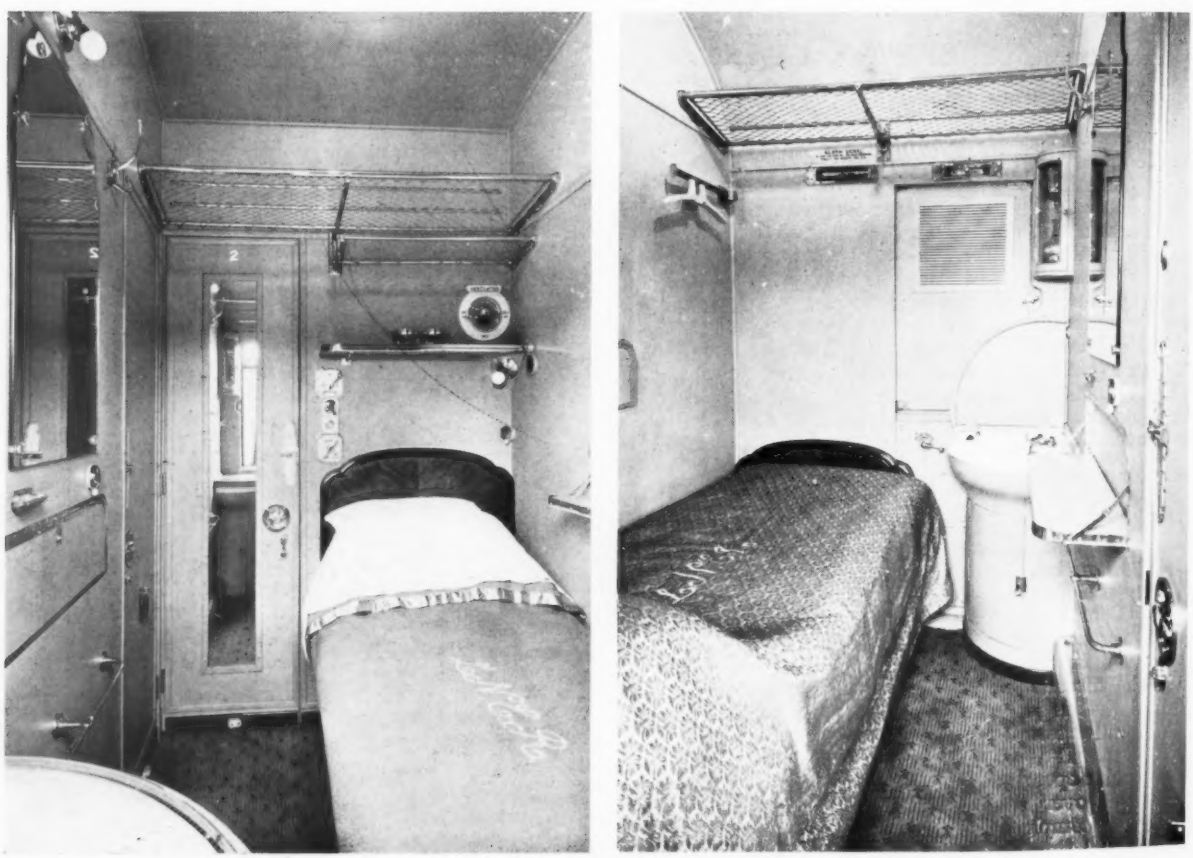
BAGHDAD RAILWAY EXTENSION.—Work on the extension of the Bozanti-Aleppo-Nisibin section of the Baghdad Railway from Tel-Ziouane to a point on the Iraq frontier was begun in March last. This extension is 70 km. long and follows the alignment projected under German auspices for the former Baghdad Railway Company. We understand that the line has already been extended from Tel-Ziouane to a point called Kubur-el-Bid, which is 14 km. further on in the direction of the Iraq frontier, and are informed that it is hoped to complete construction to the frontier terminus at Tel Kotchek by the end of this year. It appears that the new section is not yet in regular operation, but the Taurus Express will be extended over it on May 15, 1935. When the extension is completed the railway terminus will be less than 100 km. from Mosul. The motor service from the Iraq frontier to Mosul and Kirkuk will then be effected in one day only, at least during the summer season.

[Swaine

Retired railway officers and guests at the half-yearly luncheon of the Retired Railway Officers' Society (see article on page 810)

Photo]

Left, showerbath compartment in new L.N.E.R. sleeping cars; centre and right, two views showing how the accommodation can be adapted for day or night use



Left, sleeping berth showing communicating door in left-hand wall; right, view from opposite end of berth

NEW L.N.E.R. SLEEPING CARS *(see article on page 817)*

General view of the Machine Tool Exhibition now in progress at Olympia (*see article on page* 811)

A New Steel Research Laboratory

Whatever the true sociological function of research, all but panic-stricken reactionaries agree that scientific and industrial progress is to be encouraged. Each advance in knowledge is potentially an advance in wellbeing for the whole of mankind. If developments in applied science commonly spell hardship and distress to-day, that is only because the organisation in which we live is imperfect and in need of modification. Just now the general inclination is to throw science overboard as a Jonah and to pray for droughts, floods, pestilences and other price-elevating phenomena, but this is a phase of human imbecility which will pass. Meanwhile it is not every head that is turned. A belief in research still animates a few breasts and the subject of this article affords what is perhaps the most convincing proof we have had for some years that the old faith still lives.

Our subject is the new Central Research Department of the United Steel Companies, Limited. The component firms of this organisation have long conducted independent experimental and research work, and they will continue to do so. The new Central Research Department at Stocksbridge will handle problems outside the purview of the smaller laboratories, and any tendency to overlapping will be checked by the Research Directing Committee meeting at regular intervals and operating through various sub-committees. Permanent sub-committees will deal with analytical and chemical problems, steel making, properties of special irons and steels, refractory materials, and corrosion problems. Extra sub-committees may be appointed to deal with certain specific problems.

The new building is a two-storey one, covering an area 132 ft. long by 65 ft. wide. The workshop, steel making and heat treatment rooms and various laboratories are supplied with electricity (a.c. and d.c.) from gear in the basement, where also are located the heating boiler and various stores. The admirable conditions under which research is conducted in the new building will be apparent from our illustrations. Fig. 1 shows what is probably the most spacious physics laboratory in the country. On the right is gear for testing the magnetic properties of steels and on the left is apparatus for determining electrical resistances and coefficients of thermal expansion. Fig. 2 shows the heat treatment room with electrically heated furnaces. The machine shop for preparing specimens is seen through the doorway. These rooms form part of the ground floor. A very complete mechanical testing laboratory and a creep test room are provided on the same floor, and the rest of this floor is taken up by the steel melting room, the macroscopic laboratory and the laboratory for testing fuels and refractories. Microscopical investigations are conducted in the physics laboratory on the first floor. The remainder of the first floor is divided up into a chemical laboratory and various offices.

Now that the new research department is complete the British steel making industry is better equipped than ever to meet world needs.

Fig. 1—A view of the physics laboratory in the new Central Research Department of the United Steel Companies Limited

Fig. 2—The heat treatment room at Stocksbridge. The machine shop can be seen through the open door

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OPENING OF THE AUSTRALIA AIR SERVICE.—Imperial Airways Limited, which, with its associated company, Qantas Empire Airways, of Australia, has been entrusted with the operation of the England-Australia Empire air route, is now completing preparations for the inauguration of the service on December 8. Imperial Airways will operate the route from London to Karachi, and then from Karachi to Singapore in collaboration with its associated company, Indian Trans-Continental Airways. From Singapore to Brisbane the route will be operated by Qantas Empire Airways. The first service will leave London on December 8, and will arrive in Brisbane on December 20. The first service from Australia will leave Brisbane on Monday, December 10, and will arrive in London on December 24. The Duke of Gloucester has consented to perform the inaugural ceremony at Brisbane. For the first three months of the service no passengers will be carried east of Singapore. The schedule of the first journey will be 14½ days between Brisbane and London, including six days between Brisbane and Singapore. After the opening of the service, subsequent west-bound departures will be made on Wednesdays, arriving in London on Mondays, and the east-bound departures will be made on Saturdays (for the service is the extension of the India and Eastern route), with arrival in Brisbane on Wednesday, a transit of 12½ days in either direction.

RAILWAY NEWS SECTION

PERSONAL

Mr. R. J. M. Inglis, M.Inst.C.E., who, as announced in THE RAILWAY GAZETTE of November 2, has been appointed Assistant Engineer, Southern Area, L.N.E.R., joined the North British Railway Engineer's Department as a pupil in 1898, being taken on the Staff in 1900. In 1902 he was appointed Assistant Resident, and in 1903, Resident Engineer on the construction of the High Street goods warehouse, Glasgow, and yards and widenings in connection therewith. In 1905 he returned to the head office in Edinburgh, and was in charge of various large contracts under Mr. C. J. Brown, who was Chief Assistant for New Works at that time. In 1910, when Mr. Brown became Engineer-in-Chief of the Great Northern Railway, Mr. Inglis was appointed Chief Assistant in charge of the New Works Department, and had the supervision of many contracts. In 1911 he was appointed District Engineer, Northern Division, and in 1916 was transferred to the Western Division, with headquarters in Glasgow. In 1919 he was appointed Deputy Chief Engineer, Railways, at the Ministry of Transport, and early in 1921, Acting Chief Engineer. At the end of 1921 he returned to his old division in Glasgow. In 1910 he took command of the R.E. Unit of the O.T.C. at Edinburgh University, which had just been formed by Prof. Sir T. Hudson Beare, and at the outbreak of war, in 1914, Mr. Inglis, holding the rank of Captain in the Royal Engineers, T.F., immediately volunteered for service. He was appointed Adjutant to the first Training Camp for Officers at Barry under Lord Kitchener's Scheme. In October, 1914, he applied for service abroad, but was recalled to the railway service, owing to his position as District Engineer on the railway along the East Coast, embracing the Rosyth Naval Base and the Docks at Methil and Burntisland. In January, 1929, Mr. Inglis was appointed Assistant Engineer (Permanent Way), Southern Area, L.N.E.R., becoming Assistant Engineer (Construction) in 1931, which position he has held until taking up his new appointment above-mentioned. Mr. Inglis is a member of the Institution of Civil Engineers, and a Fellow of the Royal Society (Edinburgh).

Mr. R. J. M. Inglis, M.Inst.C.E.,
Appointed Assistant Engineer, Southern Area, L.N.E.R.

Mr. E. L. Hawkins,
Assistant Engineer (Maintenance), Southern Area, L.N.E.R., 1931–34

Mr. J. C. L. Train, M.C.,
Appointed Assistant Engineer (Maintenance), Southern Area, L.N.E.R.

Mr. E. L. Hawkins, who, as announced in our issue of November 2, is retiring at the end of the year from the position of Assistant Engineer (Maintenance), Southern Area, L.N.E.R., commenced his career as an apprentice at Ransome's works, Ipswich. In 1892 he became a pupil of the late Mr. John Wilson, Chief Engineer of the Great Eastern Railway, and six years later was appointed Assistant to the District Engineer, Cambridge. In 1908 he was promoted to be Chief Assistant to the District Engineer, Ipswich, and subsequently held the following appointments: acting District Engineer, Ipswich, 1915; District Engineer, Stratford, 1918, and Assistant to the Chief Engineer, 1919. At the time of the amalgamation, Mr. Hawkins was appointed Assistant Engineer, Great Eastern Section, and in 1925 became Assistant Engineer (General Maintenance), Southern Area. In 1931 he became responsible for both general and permanent way maintenance under the Southern Area Engineer, with the title of Assistant Engineer (Maintenance), the position from which he will shortly retire.

Mr. J. C. L. Train, who, as announced in THE RAILWAY GAZETTE of November 2, has been appointed Assistant Engineer (Maintenance), Southern Area, L.N.E.R., as from January 1 next, entered the Engineer's office of the North British Railway in Edinburgh as a pupil in 1908. He assisted in the carrying out of various works including widenings at Portobello and Leven before leaving the office in 1912 to take up a post under his former Chief, Mr. C. J. Brown, in the Engineer's office of the Great Northern Railway. Mr. Train was chiefly employed on construction work, and as Assistant Resident Engineer and later Resident Engineer, he had charge of the outside work in connection with the construction of the Kirkstead & Little Steeping Light Railway, and the Hertford to Stevenage Railway. He was employed on the latter work until, in August, 1914, he left the service of the company to enlist in the Royal Fusiliers. Later he was given a commission in a Field Company, R.E.,

saw service at Ypres, and was wounded in the battle of the Somme in 1916. He returned to France towards the end of the war, being awarded the M.C. in 1918, and was demobilised in June, 1919, with the rank of Major. He returned to the service of the Great Northern, and in 1921 was appointed Personal Assistant to the Chief Engineer. In 1924, Mr. Train left the Engineer's Department to become Assistant Industrial Agent in the Chief General Manager's Office, and in 1925 he was put in charge of the Works Section of that office as Chief Assistant to Mr. J. A. Wickham. He was appointed Assistant to the Chief General Manager (Works) in 1928, and District Engineer, Western District (Scotland), under Mr. W. A. Fraser, Chief Engineer (Scotland), in 1929, the appointment he now vacates to return to London as Assistant Engineer (Maintenance) Southern Area. Mr. Train was for a time Chairman of the London Section of the Permanent Way Institution, and has read papers on such subjects as "Railway Electrification," "The Hallade Track Register and Adjustment of Curves," and "Electrical and Mechanical Aids to Maintenance."

We regret to record the death, on November 7, of Mr. N. P. P. Sandberg, C.B.E., M.Inst.C.E., at his home in London, owing to heart failure after an attack of bronchitis, at the age of 54.

Photo] [Vandyk

The late Mr. N. P. P. Sandberg, C.B.E., M.Inst.C.E.,

Partner in Messrs. Sandberg, Consulting Engineers

He was educated at Dulwich College and University College, London, and served his apprenticeship at Willans & Robinson Limited, Rugby, and under the late Mr. C. P. Sandberg, M.Inst.C.E. He was taken into partnership with his father and brothers in 1906. During the war he was attached to the Ministry of Munitions and was appointed Director of Inspection of Steel, Land Service, and was also appointed an Associate Member of the Ordnance Committee (Steel Sub-Committee), 1916-18, Royal Arsenal, Woolwich. For his war services he was created C.B.E. in 1918. He was also a Commander of the Order of the Crown of Siam. The funeral service was held at Golders Green Crematorium on Saturday, November 10. Among those present in addition to the family mourners were:—

Sir Herbert Walker, Sir William Forbes, Messrs. C. C. Wang, H. E. Edwards (representing the United Steel Companies Ltd.), C. R. Mayo (representing Messrs. Fox & Mayo), and J. C. Humfrey.

It is with regret that we have to record the death, on November 9, of Sir Robert Swan Highet, Kt., C.B.E.,

The late Sir Robert S. Highet, C.B.E.,

Sometime Agent and Chairman, East Indian Railway, and Chairman of H.E.H. the Nizam's State Railway

M.Inst.C.E., sometime Chief Engineer, then Agent, and finally Chairman, of the East Indian Railway Company, and Chairman of H.E.H. the Nizam's State Railway until March last. Sir Robert Highet was born in 1859, and, after studying engineering, went out as an Assistant Engineer on the East Indian Railway. Following upon many years' wide experience, he was promoted to be Chief Engineer in 1903 and Agent in 1912, and was elected President of the Indian Railway Conference Association in 1918. He received his knighthood during the war and was a Commissioner of the Port of Calcutta. Sir Robert retired from India in 1920 and subsequently became Chairman of the East Indian and of the Delhi-Umballa-Kalka Railway Company, both of which lines are now worked as well as owned by Government. Moreover, he joined the board of H.E.H. the Nizam's State Railway and from 1931 until March 1934 was Chairman. *The Times* obituary refers to him as "one of the ablest railway administrators who have served India in recent times," an eulogy which all who knew him will endorse. Also, Sir Charles Stuart-Williams and Mr. C. W. Lloyd-Jones in the same journal write:—". . . . It is probably correct to say that he regarded himself . . . . . as an engineer first and foremost, and as administrator rather by accident than design. . . . . he rendered yeoman service to the East Indian Railway . . ."

The funeral took place at Brookwood Cemetery on November 13. Apart from the chief mourners—who included Mr. and Mrs. C. W. Lloyd-Jones — there were among those present:—

Sir Clement and Lady Hindley, Sir Charles and Lady Stuart-Williams, Sir George Colvin, Sir Hugh Hannay, Sir James Brunyate, Mr. and Mrs. H. W. Jamieson, Mr. F. Adams, Mr. D. S. Burn (representing the Nizam's Railway Board), Messrs. F. Huddleston, G. E. Lillie, G. Peddie, and C. G. Young (representing the East Indian Railway).

We regret to record the death, on November 11, of Mr. Alfred Weeks Szlumper, C.B.E., M.Inst.C.E., late Chief Engineer, Southern Railway. Mr. Szlumper was born at Milford, in Pembrokeshire, in 1858. After finishing his education at the University of Wales, he was articled to his brother, the late Sir James Szlumper. As an Engineering Assistant he joined, first the South Eastern Railway in 1880, then the Great Indian Peninsula Railway in 1882, and the

The late Mr. A. W. Szlumper, C.B.E., M.Inst.C.E.,

Chief Engineer, Southern Railway, 1923-27

London & South Western Railway in 1884. Subsequently he was a Resident Engineer for twelve years, during which he was in charge of widening works between Waterloo and Barnes, including the reconstruction of several bridges, also widenings between Hampton Court junction and Woking, and from Winchfield to Basingstoke and Worting junction. Between 1897 and 1914, during which period he held the office

of District Engineer in charge of the London District of the L.S.W.R., he was concerned with many other improvement and developmental works, including bridge renewals, station reconstructions, &c., and the preliminary stages of the reconstruction of Waterloo station. Further important works with which he was associated, including those carried out during the period after he became Chief Engineer to the London & South Western Railway in 1914, were the light railway from Bentley to Bordon, the fly-over line at Hampton Court junction, and the reconstruction of Thames and other bridges, together with the completion of the rebuilding of Waterloo station. During the war he rendered valuable services to the War Office and Admiralty for which he was awarded the C.B.E. As Chief Engineer of the Southern Railway, which he became at the time of the amalgamation in 1923, Mr. Szlumper was responsible for the new Ramsgate lines, the equipment of track for electric traction extending over many additional suburban lines besides those equipped when he was in charge of the L.S.W.R. Engineering Department, and other improvement works on various parts of the system. The new concentration yard at Feltham may also be mentioned. When he retired in 1927, Mr. Szlumper was recognised as one of the leading personalities in the civil engineering world. After his retirement his valuable services were retained by the Southern Railway in a consulting capacity. He was a Member of the Institution of Civil Engineers and was awarded a Telford Gold Medal, the Miller Prize, the Trevithick and Telford Premiums for various papers contributed. During 1922 he was President of the Permanent Way Institution, and in 1929 retired from the Engineer & Railway Staff Corps with the rank of Lieutenant-Colonel. It is significant that he leaves a son, Mr. Gilbert Szlumper, C.B.E., who is following in his footsteps to fame on the railway, and is Assistant General Manager of his father's old line.

The funeral service was held at the Church of St. John the Divine, Richmond, on November 14. Among those present were:—

Mrs. A. W. Szlumper, Mr. and Mrs. G. S. Szlumper, Mrs. Blizzard, The Misses Blizzard, Mrs. Severn, Mrs. F. C. Mabillon, Mr. J. J. Bishop, Dr. and Mrs. R. Davis, Sir William Forbes, Mr. W. A. Jepson, Mr. W. Bishop, Mr. and Mrs. G. Ellson, Sir Charles L. Morgan, Comte and Comtesse Tillette de Clermont Tonnerre, Comte Audren de Kerdrel, Sir I. T. Williams, Messrs. H. A. Sire, R. E. L. Maunsell, A. Raworth, A. D. Jones, R. Carpmael, R. G. Davidson, James Petrie, C. A. G. Edwards, A. R. Cooper, J. A. Kay, W. A. Willox, F. A. Brant, R. Duckworth, C. Gribble, C. H. Barfoot (representing Sir Herbert A. Walker), H. E. O. Wheeler (representing Mr. E. C. Cox), J. Parker (representing Mr. S. E. Hitchcock), J. G. Symes (representing Mr. W. J. Clayton), P. St. J. Bishop, E. A. Clear, A. H. Royle, H. E. Robarts, W. J. Towner, J. F. S. Tyler, C. V. Hill, W. H. Shortt, C. A. G. Linton, H. I. Bond, T. F. M. Molyneux, E. Greenhalgh, J. H. Knotts, L. Furnivall, H. A. Short, A. B. Chester, E. V. Brady, W. Messer, G. S. Finlay, F. E. Campion, R. N. Sinclair, R. T. Forbes (representing James Dredging, Towage & Transport Co. Ltd.), E. Treacher (representing Permanent Way Institution), C. R. J. Wood, C. P. Sandberg, S. L. Murgatroyd, F. A. Major (representing W. H. Smith & Son), S. J. Newstead, T. B. Davey, H. G. Hall, J. R. Scott, A. E. Clifford, E. A. Rampton, H. Cook, A. Curtis, H. C. Raindle, P. J. Morfee, R. Peters, K. R. Pearson, S. E. Marsh, A. Piper, H. W. A. Demon, O. S. Willmott, T. E. A. Caton, J. Paton, A. G. Healey, T. Bending, W. Langston, R. D. Hawes, D. A. Keith, R. Hiscock, W. Denny, E. Johnson, J. E. Taylor, C. Ellson, M. L. Bazley, H. Pierce, J. Cole, A. E. Smith, V. J. Neal, A. R. Neal, H. T. Smith, H. L. Smith, W. V. Burkett, J. Lewin, W. Tyrrell, C. Maynard, S. Wheeler and G. Elliott.

It is with regret that we note the death, on November 11, of Sir Donald Mann, the great Canadian railway builder. He was born in 1853, started life in lumber, and became a railway contractor in a small way at Winnipeg in 1879. It was in 1886, however, that he went into partnership with William Mackenzie, both partners being knighted in 1911, for the remarkable extent to which the Dominion is indebted to the pioneering enterprise of the firm for the widespread development of the country by the numerous railways it constructed. Its greatest early work was the building of a considerable part of the Canadian Pacific transcontinental line which crosses the Rockies. Subsequently the firm contracted for new railway works all over Canada, and these were gradually built up to form the nucleus of the Canadian Northern system, which was eventually taken over by the Canadian National Railways. Sir Donald was at one time a Vice-President of the Canadian Northern Railway. The scope of the concern was not confined to railway works, and it included tramways and electric lighting enterprises in Winnipeg, São Paulo (Brazil) and Toronto and also collieries.

Mr. Nigel Campbell, of Helbert Wagg & Co. Ltd., has joined the board of Stewarts and Lloyds Limited.

Lord Devonport, late Chairman of the Port of London Authority, left estate valued at £1,897,818 (£1,750,221 net).

Sir Clarendon Golding Hyde, late Deputy Chairman of the former Metropolitan Railway Company, left estate valued at £236,174 (£215,098 net).

Mr. W. Howard-Williams, C.B.E., a Director of the Central Argentine, Argentine Transandine, United Railways of Havana, and Havana Terminal Railways has been elected a Director of the Buenos Ayres & Pacific Railway, in place of Mr. Roger Wright, retired.

Mr. W. K. Wallace, Chief Engineer, London Midland & Scottish Railway, has accepted the Presidentship of the Permanent Way Institution for the ensuing year, in succession to Mr. Arthur R. Cooper, Chief Engineer of the London Passenger Transport Board, who retires after a term of office extending over two years, 1933 and 1934.

Mr. J. Hopwood has been appointed Operating Superintendent, Rhodesia Railways.

Signor Velani, the General Manager of the Italian State Railways, has been elected a Director of the International Sleeping Car Company.

Major Oscar Loewenthal, General Manager, Entre Rios & N.E. Argentine Railways, and Mr. G. F. Sampson, Traffic Manager, Central Argentine Railway, returned to Buenos Aires from Europe on October 26.

Dr. Schwerin retired on October 1 from the position of Director and Chief of the Technical Department of the Vereinigte Eisenbahn - Signalwerke, Berlin, and has been succeeded by Dr. H. F. Arndt, M.Inst. R.S.E. Dr. Schwerin entered the service of Siemens and Halske in 1896 and was soon associated with the late Herr Pfeil in electric signalling work, then in a state of rapid development in Germany. The all-electric power system was being introduced and Dr. Schwerin was closely connected with the various installations made in Germany, and other countries, such as Belgium. The Prussian State Railways co-opted him as a member of their Block and Interlocking Committee, to advise on all signalling and safety questions.

South African Railways & Harbours Appointment

Mr. J. F. Craig, Harbour Engineer of Table Bay, has been promoted to the position of Harbour Advisory Engineer for the Union. He will be in charge of all engineering matters affecting ports in the Union from Swakopmund to St. Lucia. Since the retirement of Col. Nicholson this important post has been vacant and it has now been filled doubtless on account of the new harbour schemes which are to be commenced within the next two or three months. Mr. Craig was mainly responsible for the big harbour developments at Port Elizabeth and East London and has now before him a great undertaking in the new dock at Cape Town, where berths are to be provided for the new 25,000-ton Union Castle mail steamers under construction.

Indian Railway Staff Changes

Mr. F. R. Hawkes, officiating Chief Commercial Manager, N.W.R., has been confirmed in that appointment with effect from December 22, 1932.

Mr. W. Hood has been confirmed as Deputy Chief Engineer, Bridges, G.I.P.R., as from September 15, 1934.

Mr. G. A. R. Trimming, Deputy Agent, Organisation, E.B.R., has been transferred to the E.I.R., as Deputy Chief Mechanical Engineer, as from March 12.

Speed of Travel of the Future

In opening his paper on the Speed of Travel of the Future, which he read to the Institute of Transport on Monday, Mr. Raymond Carpmael (Chief Engineer, Great Western Railway) discussed the factors most likely to contribute to the sweeping accelerations in journeys by rail heralded by recent developments. He did not consider that the civil engineer would be conspicuous, for much of his work was already accomplished. The high speeds regularly attained by Great Western expresses running to the 40-min. non-stop schedule between London and Reading, and the record run of the Cheltenham Flyer over the 77¼ m. from Swindon to Paddington in 56¾ min., demonstrated that the permanent way was equal to carrying trains running at the highest speeds in safety.

It was the streamlined, internal combustion engine-driven train which would carry on the revolution in travel it had itself initiated. The regular 77·4 m.p.h. booking of the German Flying Hamburger, the high maxima and averages touched by American units in the course of demonstration runs, and the occasions on which certain French railcars have attained the 100 m.p.h. mark, show that here is a medium for the conveyance of passengers with a hitherto impracticable despatch. At present, however, the railcar did not compete with the orthodox train in carrying capacity, and although speeds of steam-hauled expresses had been greatly improved, the weights hauled had increased prodigiously above those of the flyers of forty years ago. This excess was largely due to developments promoting the comfort and safety of passengers.

Other forms of transport had produced still more startling accelerations, although Mr. Carpmael did not suggest that the 300 m.p.h. speeds of Schneider Trophy seaplanes, or the maxima achieved in record attempts on land and water, were as yet of commercial value. We had, however, seen a significant demonstration of speed in the 180 m.p.h. average between England and Singapore set up by C. W. A. Scott and T. Campbell Black in the Australia Air Race. It was well known that the railways were taking advantage of the potentialities of this form of transport.

Permanent Way Maintenance

On the Great Western Railway, Brunel had laid out a track between Paddington and Swindon which had made it unnecessary to impose limitations upon speeds regarded as high even to-day. The desiderata of strength in the rails themselves and in the sleepers, earthworks and structures which carried them were everywhere present in British main line permanent way, and were maintained by constant scientific, theoretical and practical review. Research was constantly undertaken to determine the ideal metallic composition and contour of rails. Two of the supports of the rail, the chair and sleeper, called for little comment beyond indicating that steel sleepers, with the chairs cast or welded thereto, had proved a good substitute for timber. The problem of the rail joint brought with it a curious psychological factor, in that were it completely eliminated the public would probably complain at the absence of the familiar thudding of the wheels. The latest improvement, adopted by all the companies, was the use of short, two-hole fishplates, with correspondingly reduced spacing between the sleepers on each side of the joint. We were to-day nearer than ever before to a solution of the joint problem.

Efficient drainage and ballasting were essential if high speeds were to be smooth and comfortable. Impact and hammer-blow of locomotives had been reduced by balancing, so that the civil engineer no longer had to make such costly provision for strengthening bridges as was previously necessary before he could sanction high speeds. Rail wear and sleeper decay were closely watched, and replacements were made to keep the track always in a condition to carry the fastest traffic passing over it.

The Task of the Locomotive Department

Since the permanent way was ready for all his demands, the locomotive engineer had to face alone the most serious problem of speed—that of providing haulage power sufficient to maintain with safety over still longer distances the high averages already achieved on certain journeys. This year, only France, Germany and Great Britain had shown daily runs at 66 m.p.h. and over. There were thirteen trains so scheduled, of which France contributed eight, Germany four, and Great Britain one. The mileages covered were respectively 820, 712 and 77. The impetus of the movement towards acceleration could be gauged by the fact that between 1933 and 1934 the distance run at 64 m.p.h. and over increased by 929 miles in Germany and by 240 miles in France. The British figure remained unchanged.

It could not be too strongly emphasised that the motive power and rolling stock departments must regulate their progress by that of signalling, for as speeds rose, greater efficiency and modified arrangements in this province became necessary. Braking distances and the visibility of signals had to be increased colaterally with train speeds. Powerful colour-lights already gave indications as clear by night as by day, while automatic train control dispelled the problems set by vagaries of the weather. A still existing obstacle to the maintenance of high speed was the existence of level crossings, to be wholly cleared away only by their substitution with bridges.

Operating and Economic Problems

The operating department would play its part in the development of high-speed travel. The superelevation of curves required for traffic moving at 90 m.p.h. and upwards was much in excess of that for normal purposes. The question of providing separate high-speed lines might therefore have to be considered if speed restrictions were to be abolished. For the same reason, flying junctions would be necessary to replace existing intersections on the level. Here the problem became economic rather than technical. As speeds rose, so did expenditure, not only in the provision of suitable permanent way and signalling devices permitting high averages to be maintained irrespective of weather, but in the construction of the trains themselves. Each car unit of a diesel streamline train, for example, cost about £15,000, a figure out of all comparison with that for an ordinary passenger coach and locomotive.

Concluding, Mr. Carpmael urged the necessity of accelerating suburban services in congested areas as speeds increased elsewhere. For such conditions electric power held pride of place, but could demonstrate its capacity only if local trains were allotted tracks independent of those used by main line expresses. From the railway viewpoint, therefore, the development of high-speed travel rested more with the general managers than with the engineers, mechanical or civil.

Mr. Carpmael illustrated his lecture with lantern slides, comparing modern examples of locomotives, signalling equipment, ships and aircraft with their early predecessors.

The Discussion

Mr. William Whitelaw (Chairman, L.N.E.R.), who presided, moved a vote of thanks to Mr. Carpmael, and introduced the discussion on his paper. He asked how many consecutive miles of the railways of Great Britain were suitable for speeds of 100 m.p.h., and where a 100-mile stretch could be found on which, as it stood, trains could run at this speed. High speeds were valueless except in a country adapted for them. The engineers of the North British Railway had gone to great expense in constructing a level line from Edinburgh to Glasgow, but as the district was honeycombed with underground workings, the route was useless for very fast running. The same condition was extremely prevalent on the East Coast main line north of Doncaster. In Scotland there were not fifty miles suitable for high speed. A further obstacle to very fast

running was the island-platform station. This was an economical method of construction, but constantly necessitated curvature which, although slight, became increasingly serious as trains travelled faster.

Mr. G. Ellson, O.B.E. (Chief Engineer, Southern Railway), could suggest nowhere with even 40 consecutive miles over which 100 m.p.h. could be maintained in safety—which was the cardinal consideration. The maximum safe speed on a curve of ½-mile radius was 60-65 m.p.h., and there were many curves with a smaller radius than that in this country. With the object of reducing the pounding of track at high speeds, the question of rail joints was being thoroughly investigated. The development of welding gave hope of the best solution, which was the elimination of joints altogether. It had been widely and successfully adopted on the Continent and in Australia. The chief objection to continuous welding was the possibility of lateral distortion of the rails in hot weather. His own investigations showed that the maximum temperature variation in the longer tunnels on the Southern Railway was 40° between winter and summer. Bull-headed rail gave less resistance to lateral distortion than the flat-bottomed type, the adoption of which might have to be considered if full advantage was to be taken of modern processes.

Mr. C. E. R. Sherrington (Secretary, Railway Research Service) referred to the recent record steam run between Chicago and Milwaukee on the Chicago, Milwaukee, St. Paul & Pacific Railway (recorded in THE RAILWAY GAZETTE of October 5). The costs involved had been closely compared with those of the Burlington Zephyr record journey to Chicago on the opening of the exhibition, and although the cost per train-mile of the light steam train was much heavier, there was only one per cent. difference when these were brought down to 1,000 tons trailing. Mr. Sherrington criticised the limited internal dimensions imposed by streamlining, describing them as a reversion to the standards of comfort of 1874. The Union Pacific streamline train seated four persons abreast, with a centre gangway, in a width of 8 ft. 6 in. The ordinary Pullman car had a centre gangway and two seats abreast in a width of 10 ft.

The problem of high speed signalling was particularly acute in this country, where we had a traffic density of 52 trains to the average route mile, comparing with 27 in Germany, 9 in the United States and, curiously enough, 30 on the South Manchuria Railway. Mr. Sherrington considered that more important than the paring of minutes off our principal expresses was the standardisation of the time taken up by road journeys to and from the stations, which might vary so widely under the present congested conditions that accelerations by rail were more than counteracted in total door-to-door times.

Sir Clement Hindley (formerly Chief Commissioner, Indian Railway Board) said he would like to see the railways working for speed. He wanted to reach Brighton in half an hour, Birmingham in an hour, York in two hours, and Glasgow in four hours. He thought it was time the railways woke up. Mr. T. Beach-Smith (Chief Superintendent of Transportation, Rhodesia Railways) pointed out that the Union Pacific streamline train weighed no more than a British engine alone. The present need was for lighter locomotives and rolling stock.

Mr. W. A. Willox (Chief Assistant Editor, THE RAILWAY GAZETTE) offered the G.W.R. route from London to Bath as a solution to Mr. Whitelaw's request for 100 consecutive high-speed miles, but said that the present need was rather for 60 m.p.h. averages by the better use of existing equipment. Mr. Carpmael had quoted the G.W.R. London-Reading service, which was an example of consistently high speed over a short distance. He drew attention to other examples indicating the possibility of maintaining a 60 m.p.h. average, including stops and slows. One was the 32 min. schedule for the 33½ miles from Brussels to Ghent, followed, after a stop there, by a 26-min. booking for the next 26½ miles to Bruges. A speed of over 60 m.p.h. was maintained by a Bugatti railcar running from Paris to Lyons, despite two stops and many speed restrictions. If we adopted such standards, Edinburgh could be reached in six hours from London. A vital feature of streamlining was that its effect increased with speed, and he suggested trying the experiment of streamlining the Cheltenham Flyer.

Replying to the speakers, Mr. Carpmael referred to the question of wood and steel sleepers. Although the Cheltenham Flyer ran over wood sleepers throughout, there were many miles of steel sleepers on other parts of the G.W.R., where high speeds were maintained without restrictions.

Among those present, apart from members mentioned above, were:—

Messrs. A. R. Cooper, G. H. Griffith, W. A. Jepson, J. A. Kay, D. R. Lamb, Dr. W. Lowe-Brown, Sir Osborn Mance, Messrs. J. Pike, A. Quartermaine, Roger T. Smith, T. E. Thomas, Lt.-Col. L. Manton, W. K. Wallace, H. A. Watson.

Southern Railway Musical Society

From Wednesday to Saturday last week the Southern Railway Musical Society gave its tenth operatic production, "The Gondoliers," at the Fortune Theatre, Drury Lane. The whole of the performers and chorus were members of the Southern Railway Company's staff, and the production, under the direction of Mr. George Hay, was in every way successful. The players took full advantage of Gilbert's clever lines and Sullivan's melodies to provide excellent entertainment.

Mr. H. J. Morris played the Duke of Plaza-Toro; Mr. T. E. Newman, Luiz; Mr. Alan Stafford, the Grand Inquisitor; Miss Aurelie S. A. Wright, the Duchess; Miss Nora Buck, Casilda; Miss Elsie Milton, Gianetta; and Miss Doris James, Tessa.

Friday evening of last week was guest night and amongst the directors and chief officers of the Southern Railway in the audience were: Mr. Holland Martin, Sir Herbert Walker, Mr. William Bishop, Mr. Edwin C. Cox, Mr. R. G. Davidson, Mr. J. B. Elliot. Guests from other companies included Sir Josiah Stamp, Mr. W. V. Wood, and Mr. J. P. Thomas.

NEW RAILHEAD DEPOT AT NEWCASTLE-ON-TYNE.—The L.N.E.R. has arranged to erect a railhead depot at Newcastle-on-Tyne for the use of H. J. Heinz & Co., of sauce and pickle fame. The depot, which will be of most up-to-date design, will be adjacent to the L.N.E.R. New Bridge Street warehouse. Office accommodation on the upper floor will be provided for the use of the firm's clerical staff. From this new depot products of the firm will be distributed throughout Newcastle and the surrounding district.

London Transport Players

Under their new and more euphonious title of the London Transport Players, our friends of the former T.O.T. Philharmonic Society gave on Tuesday night their first presentation of "The Desert Song." The colourful scenes and tuneful, rhythmic music of Sigmund Romberg provided an excellent medium for the abilities of these experienced performers, who are presenting their 26th production. A little more reliance was placed on the principals at the expense of the chorus than on previous occasions, but the team work was nevertheless good.

For sheer acting, the premier honours went to Lilian Spracklan as "Susan" and her opposite, Cyril Corker as "Benjamin Kidd," and for terpsichorean ability Adeline Sealy as "Azuri" and Gladys Langton as "Clementina" were notable.

Considerable credit is due to Mr. Emil Hardy, the producer and stage director, for the clever casting upon which the success of the performance largely depended. The orchestra was under the direction of Mr. Charles Lambert who expended tremendous physical energy in conducting, and kept his team well in line, although at times not sufficiently subdued for the solo parts which required background accompaniment rather than forcing.

This successful performance was repeated on Wednesday and yesterday, and is to be given again to-night (Friday) and to-morrow at the New Scala Theatre, Charlotte Street, W.1.

Retired Railway Officers' Society

(*See illustration on page* 801)

Mr. E. A. Clear (President) presided at the half-yearly luncheon of the Retired Railway Officers' Society held at the Abercorn Rooms on Tuesday. There was a record attendance, and the principal guests were The Rt. Hon. Sir F. Stanley Jackson, G.C.S.I., G.C.I.E., P.C., B.A., Sir Ralph L. Wedgwood, C.B., C.M.G., The Very Rev. E. Lowry Henderson, M.A., Dean of St. Albans. Among the members and visitors present were:—

Messrs. A. W. Barrett, A. R. Bell, A. J. Brickwell, C.B.E., F. S. Bridge, J. Brittlebank, A. H. Bull, H. R. Campfield, S. B. Carter, R. F. C. Castleman, G. J. Chesters, T. Chew, T. Christopher, W. J. Clayton, Major A. Clear, Messrs. G. Clear, C. E. Cockburn, O. H. Corble, E. Crofts, R. A. Crawford, Ashton Davies, O.B.E., H. Davis, G. Cole Deacon, F.W. Dingley, A. E. Dolden (Hon. Auditor), A. S. Dolden, P. J. Dowsett, H. G. Drury, M.V.O., H. W. C. Drury, W. D. Duffield, A. F. Dymant, J. Edmeades, J. W. Faulkner, H. Ferguson, J. H. Follows, C.V.O., C.B.E., E. Ford, O.B.E., Major G. N. Ford, O.B.E., Messrs. H. Goulborn, S. A. V. Gregory, B. Griffin, H. J. Guest, T. E. W. Guest, E. B. Hassall, G. T. Hedge, G. Hughes, C.B.E., Lt.-Col. H. A. Hull, Messrs. F. Hyde, M.C., W. H. Hyde, T. Jacobs, A. James, W. E. James, W. A. Jepson, S. F. Johnson, H. Jude, J. A. Kay, D. R. Lamb, J. F. Lean, J. W. Lovejoy, T. E. Lovell, J. McLaren, H. Marriott, C.B.E., S. E. Marsh, A. Maynard, Lt.-Col. P. D. Michod, Messrs. A. S. Mills, J. P. Milton, W. R. Mole, J. R. Morris, G. Morton, A. Oldham, O.B.E., Cdr. F. J. Paice, Messrs. L. D. Parsons, J. Pike, O.B.E., E. Prebble, P. H. Price, O.B.E., A. Paleston, J. Quirey, C.B.E., D. Poyntz Ricketts, G. S. Rider, C. A. Roberts, C.B.E., S. Roberts, Trevor Roberts, E. Robinson, M.B.E., A. P. Ross, J. Roughton, H. J. Rudgard, O.B.E., F. A. Sargent, O.B.E., G. G. Senior, O.B.E., T. H. Shipley, J. H. Smith, J. Proctor Smith (Hon. Treas.), T. Smith, D. Spooner, J. Spooner, E. Taylor, W. A. Thomas (Hon. Sec.), H. Thompson, G. F. Thurston, J. Tipton, R. H. Todd, E. W. Tyler, W. T. Venton, A. Walker, G. J. Walker, H. C. Walton, V. M. Barrington-Ward, D.S.O., J. Wardle, Sir Arthur Watson, C.B.E., LL.D., Major H. A. Watson, C.B.E., M.V.O., Messrs. W. Wharton, P. Wharton, H. E. Wheeler, J. Williams, N. G. Williams, A. Wood-Hill, W. Yates, Capt. Zohrab.

Mr. E. A. Clear in proposing "The Guests," expressed his pleasure at seeing so many active railway officers present, and they looked forward to the time when they could grow old gracefully along with them. The presence of so many chief officers was distinctly encouraging and they especially welcomed Sir Ralph Wedgwood who had helped them to enjoy their excursion in the summer, also Mr. Thurston and Mr. Barrington Ward and the Dean of St. Albans. They had another old friend present in the person of Sir Stanley Jackson who was for many years a director of the London & North Eastern Railway before his Government appointment in India.

The Rt. Hon. Sir Stanley Jackson, in responding, said nothing gave him greater pleasure than to join a gathering of railwaymen. As long as he could remember he had been interested in railways, though he had never experienced the wish of most small boys to become an engine driver. He remembered when at school reading in the newspapers that his father had been elected a director of the Great Northern Railway. Not being certain what that meant, he asked his housemaster, who incidentally was a Scotsman, who said: "It's a grand job—he travels free." He remembered also his father telling him of his first journey to London, which was by an excursion train in 1852 from Leeds to London, when he was twelve years old, in days of keen competition; the fare for the round journey of 400 miles was 2s. 10d., and he had two bottles of ginger beer given by the company. Continuing, he said he had never spent such a happy time as the ten years when he was a railway director. When asking what he might speak about that afternoon he had been advised that there were three subjects—"anything," India, or cricket. Regarding cricket, he considered that it gave instruction in those qualities that were most valuable in after life. Cricket, he contended, was in as healthy a state as it ever had been. He was referring to cricket generally, and not necessarily to first class cricket. Regarding India, the British had been there for over 100 years and during that time the Indians had been encouraged to train themselves to carry responsibility and had learned the art of administration under the Indian Civil Service. Among the greatest monuments of the British in India were the railways which were as good as anything he had found in Europe. During his years in India he had been pleased to meet railwaymen, many of whom he found had been trained on British railways and in the works at Doncaster, Derby, and Crewe.

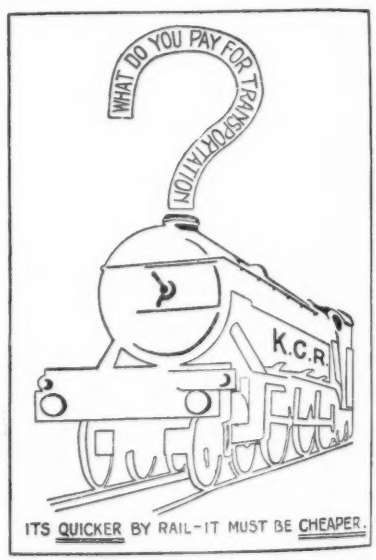
The Very Rev. E. Lowry Henderson, Dean of St. Albans, in proposing "Success to the Retired Railway Officers' Society," said he had been impressed by the youthful appearance of those present which showed the good result of a life of hard work and unblemished integrity. He found himself sitting between two old friends, Mr. Clear, a resident of St. Albans, who was always ready with counsel and advice, and Mr. Follows, who years ago had been one of his sidesmen at St. James's Church, Derby, and since then had expanded in every way.

Sir Ralph Wedgwood, in responding, said he felt himself amongst a gathering of elder statesmen, a number of whom held prominent positions in the railway world when he entered the service. For example, he saw there Mr. Marriott, who taught him much that he knew about railway rates; Mr. Jepson whom he had frequently sat under at the Railway Rates Tribunal, and Mr. Quirey who succeeded him. The retired railway officers sat like Olympians able to look down on those still engaged in railway work, but he felt sure that any criticism they had of the way the work was carried on under present conditions would be tempered with mercy.

Sir Arthur Watson, who also responded, said he was glad to see that 125 members had about 130 guests, which showed how those still in the service liked to join with their former colleagues at the half-yearly luncheons of the Retired Railway Officers' Society.

The toast of "The President" was proposed by Mr. C. A. Roberts and seconded by Mr. G. G. Senior, and after a brief response by the President the proceedings terminated.

ANOTHER KOWLOON-CANTON ADVERTISEMENT.—A question which should arrest the attention of all transport users is cleverly given prominence in the advertisement of the Kowloon-Canton Railway, British Section, which we reproduce. Like the announcement upon which we commented in our issue of August 10, and with which it occurs concurrently in the Hong Kong local



press, it has been designed by Mr. R. D. Walker, Manager and Chief Engineer of the company. The L.N.E.R. Pacific inspiration apparent in the drawing suggests the question whether the externals of these engines have not become more familiar to newspaper readers than those of any other British locomotive class, owing to the frequency with which photographs of them are used to illustrate articles in the press on railway matters. The "its quicker by rail" slogan in the letterpress is a compelling feature of the advertisement.

The Machine Tool and Engineering Exhibition

(*See illustration on page* 803)

The fifth Machine Tool and Engineering Exhibition, which opened at Olympia on Thursday, November 8, represents what must certainly be the largest and most important display of machine tools and other engineering appliances ever brought together at one time and place. It is of particular interest to railway engineers, especially to those concerned with locomotive, rolling stock and similar workshops. The machinery exhibited incorporates every class of machine tool and other types of equipment used by railway shop engineers, whilst in addition there are numerous general purpose machines no less worthy of inspection by mechanical engineers. Essential adjuncts to machine tool installations are well represented at the exhibition, these including steels for high-speed cutting and numerous other purposes, heat treatment furnaces, anti-friction bearings, numerous electrical appliances, welding apparatus, plants for carrying out chemical processes, diamond cutting and many other operations; in fact, the exhibition has something of interest to offer to all mechanical engineers.

On this and the following page we survey some of the exhibits, special attention being given to those with a direct railway application.

Edgar Allen & Co. Ltd.

On stand 78C Edgar Allen & Co. Ltd., of Sheffield, displays a range of Stag Major superweld fuse-welded tools for boring, planing, turning and similar work. These tools combine a high grade steel shank with a super high speed steel end, the heavier sections having manganese chrome alloy steel shanks. All the tools are ready for use, and over three hundred shapes and sections are stocked. Stag Major super high speed steel used for the cutting portions of the tools is made by the high frequency electric crucible process, and it is claimed by the makers to be the finest cutting steel yet produced by modern metallurgical research.

James Archdale & Co. Ltd.

James Archdale & Co. Ltd. of Birmingham is a manufacturer of machines which find a distinct use in railway shops. They are showing at Olympia a medium duty centralised control radial drilling machine having a maximum radius of 5 ft. 0 in., and a maximum drilling capacity of 2 in. dia. in mild steel; also the Archdale 38 in. sensitive radial drilling machine having a maximum drilling capacity of 1 in. dia. in the same material. This machine is designed for high speed drilling of small holes, and has several interesting features. On this stand also will be found 21-in. and 28-in. production drilling machines and the all-electric ball bearing sensitive drilling machine made by the firm. Several other types of milling and drilling machines are included in the exhibit, among them being the Archdale 24-in. vertical machine, a sturdy general purpose tool with automatic longitudinal and transverse traverses. This firm's exhibits are shown on stands 53, 54 and 94 in the Grand Hall.

William Asquith Limited

Another firm whose products are closely identified with railway works is that of William Asquith Limited, of Halifax, which on stand No. 27 shows several radial drilling, boring, tapping and studding machines of various sizes and capacities. An item of particular interest here is the articulated arm type radial drilling machine, which is exceedingly handy for light drilling operations. Similarly the 8 ft. 0 in. S.C.7 high speed radial drilling machine is worthy of inspection, being an up-to-date development of the S.C. design first exhibited in 1928. There are shown, in addition, a machine for boring and honing cylinders and a keyseating and cotterway machine. The S.C.5 type radial drilling, boring, tapping and studding machine has a wide range of usefulness in a railway works. With 8 ft. 0 in. by 9 ft. 0 in. radius this will drill and tap up to 3 in. dia. from the solid and perform light boring up to 10 in. dia. This is a thoroughly modern tool in all respects, and the patented automatic speed selector built into the front of the slide makes possible the quick selection and application of the appropriate speed for the class of material being dealt with.

British Thomson-Houston Co. Ltd.

The exhibit of the British Thomson-Houston Co. Ltd., on stand No. 12, Empire Hall, is representative of the latest practice in electrical equipment for machine tool work and includes various types of motors and control gear. Several of the exhibits are being shown in operation, including a four speed change pole geared motor having a ratio of 10:1, and providing in all a choice of eight speeds. This exhibit also demonstrates the action of the new B.T.H. reverse rotation relay, by means of which instantaneous stopping of the machine can be obtained. In addition there are shown examples of squirrel cage built-in type stator and rotor units as extensively used on machine tools both for main and auxiliary drives.

British Timken Limited

On stand No. 88A in the Grand Hall, British Timken Limited, of Birmingham, shows a full range of ball and tapered roller bearings, together with working examples of high speed machine tools equipped with Timken special high precision tapered roller bearings. These are manufactured to extremely close tolerances throughout all production operations. On final test, the total eccentricity of complete bearings is kept within a limit of ·00015 in., measured with one race revolving and the other stationary. Demonstrated under actual conditions is a machine used in the Timken factory for grading and sorting tapered rollers. This constitutes an electro-mechanical "robot," and its operation will doubtless be closely watched by large numbers of visitors to the exhibition. By means of this machine rollers are graded down to a variation of ·00025 in. at the rate of 3,000 an hour. Considerable historical interest is attached to the actual samples of Timken bearings exhibited; these range from the bearings of 1898 to those of the present day.

Brooke Tool Manufacturing Co. Ltd.

The Brooke Tool Manufacturing Co. Ltd., of Birmingham, exhibit on stand No. 117C, in the Gallery, a full range of productions, including high-speed steel twist drills, milling cutters of all types, reamers, metal slitting saws, end mills, broaches, tapping attachments, machine vices, jigs and fixtures and accurate machined parts. A representative range of the firm's patent drill chucks, both key operated and keyless types, will be shown and demonstrated in actual working conditions on an upright sensitive drilling machine. Tapping attachments in various sizes will also be demonstrated, and a full range of pumps for the supply of suds and lubricant will be shown, also a few pumps of high pressure type suitable for dealing with pressures up to and exceeding 500 lb. per sq. in.

Burton, Griffiths & Co. Ltd.

The stands of Burton, Griffiths & Co. Ltd., of Birmingham, Nos. 18 and 19 in the Empire Hall, are devoted partly to a display of types of machine tools for which the firm are agents, and partly to a range of small tools. Included in the exhibit are machines manufactured by Kearney & Trecker, Landis, Jones & Shipman, Kearns and B.S.A. Tools Limited, this latter covering drills, special cutters, reamers, taps, dies, pumps and vices. There will also be on display Rotax electric tools and Solex precision gauges, the latter using compressed air. The exhibit covers as well several other items of equal interest.

Butler Machine Tool Co. Ltd.

The Butler Machine Tool Co. Ltd., of Halifax, has on view a number of machine tools adaptable to a variety of work in locomotive and other engineering works. There is an 8½-in. stroke tool room shaper and an 18-in. general purpose shaper, and in conjunction with these some machines referred to as Super shapers are shown. These latter are all built to the same general design, the drive being by friction clutch to an eight speed gearbox.

Two sizes of the Butler opensided crank planer are exhibited, namely the 36-in. and the 48-in. machines. In these models the drive is by plate clutch to a six-speed gearbox, the gears being of high tensile steel running in oil. Two toolboxes are fitted as standard with micrometer collars to all feed screws.

Churchill Machine Tool Co. Ltd.

Stand No. 63, occupied by the Churchill Machine Tool Co. Ltd., of Broadheath, Manchester, displays several interesting grinding machines of advanced design. A feature here is the firm's patent Hydrauto grinding wheel head, which overcomes the disadvantages of varying viscosity of the lubricant and variation in structure of the bearings due to temperature. The whole periphery of the grinding wheel is brought into use with freedom from vibration, thus giving a higher finish and considerably extended periods of time between retruing. The Churchill Intermatic internal grinding machine also shown automatically repeats a given size of bore without plugs or gauges having to be used. Two of the No. 2 centreless grinding machines are shown, one arranged for through feed grinding, and the other for concentric grinding.

Craven Brothers (Manchester) Limited

Craven Bros. (Manchester) Limited, of Reddish, Stockport, is exhibiting several machines on stands Nos. 12, 32 and 43, in the Grand Hall. These include a railway wheel lathe for turning new—or re-turning worn—carriage and wagon wheels from 2 ft. 9 in. to 3 ft. 9 in. dia. This machine is of the " roll through " type, in which the wheel sets may be rolled in from a track on one side and rolled out to a track on the other side. Both headstocks, together with the tool slides, move along the bed to admit of the passage of the wheel sets. The machine is fitted with quick power traverse to both longitudinal and transverse motions on both rests, this being applied by low horsepower flange mounting motors. An electrically-operated locking device binds the headstocks to the bed. All the tools used on one tyre are permanently fixed on the relative slide in such a manner that the roughing, forming and finishing operations are completed without replacing a tool. Four rates of automatic feed are provided, namely $\frac{1}{16}$ in., $\frac{1}{8}$ in., $\frac{3}{16}$ in. and $\frac{1}{4}$ in. Another exhibit on this stand of special interest to railway workshop engineers is the 15½-in. centre Craven double-ended axle finishing lathe, which will take axles up to 9 ft. in overall length by 10 in. maximum dia. It is designed for machining both ends of an axle simultaneously. Four feeds are available for longitudinal movement, namely 0·018 in., 0·030 in., 0·060 and 0·094 in. and four feeds of one-third these pitches for cross movement. The machine is driven by a 25 h.p. a.c. motor.

Greenwood & Batley Limited

The items shown on the stand of Greenwood & Batley Limited, of Leeds, No. 68B, Grand Hall, include a ⅜-in. solid die double stroke cold forging machine driven by a Greenbat 10 h.p. squirrel cage motor, and an automatic bolt head trimming machine driven by a 5 h.p. motor of the same make trims the blanks from the forging machine to ⅜-in. B.S.F. hexagon heads at the rate of 70/80 a minute. Models of Greenbat electric trucks and details of the same make of variable speed hydraulic pumps are also shown.

Alfred Herbert Limited

Alfred Herbert Limited, of Coventry, and associated companies, have on view a comprehensive display of machine tools and other products, many of the machines being shown in operation in the Grand Hall on stand No. 39. Altogether this firm and its associates occupy five stands, and are, therefore, able to make a very imposing contribution to the exhibition. The Herbert milling machines are to be seen working, as are also light, medium and heavy horizontal and vertical machines, including the new No. 35 universal miller. On stand 51 there are to be seen the firm's capstan, turret and automatic lathes. On stand No. 9 in the Empire Hall, Zeiss fine measuring instruments applied to a number of purposes including that of locomotive alignment, together with numerous light machines, are shown in operation, whilst on a third stand, *i.e.* No. 10, there can be seen a new range of Norton grinders for cylindrical and surface grinding. Stand No. 17B is utilised for a working demonstration of Coventry dieheads, Tangic dieheads, Herbert air chucks and other products, and here also is a display of the all-British high-speed cutting alloy to which the name Ardoloy has been applied, the demonstration of this material being given on the Herbert No. 8 combination turret lathe.

We propose to notice in next week's issue a further selection of exhibits of railway interest.

Running Shed Economy

At a meeting of the Junior Institution of Engineers held in London on October 26, Mr. E. J. H. South read a paper on " Locomotive Running Shed Economy." Reviewing running shed activities, he emphasised the necessity for any measures that would reduce cost and working expenses, and among these mentioned first the use of wheel drops and hot water boiler washing out. Describing the latter process he said that not only did it save about 15 hours of valuable locomotive time on each engine wash out, but it also saved large sums on boiler repairs by obviating the necessity of cooling down and its attendant stresses and strains in all parts of the boiler and firebox. His actual instance of hot water plant was one made by the Economical Boiler Washing Co. Ltd., which he described as typical.

A further development of this process, known as a " direct steaming " plant, supplied by the same firm, was then described. It consisted, he said, of a steam generating plant for providing steam at high pressure by which the locomotives were re-steamed or " held " ready for service if not required immediately. This method had the additional advantage that the smoke nuisance was practically eliminated. An illustration showing the shed connections of one of these direct steaming plants installed on the Federated Malay States Railway was shown.

The author then turned to the mechanical coaling of locomotives and several equipments were described including plants fitted with anti-breakage devices for use with soft coal. Plants mentioned included installations by Henry Lees & Co. Ltd. and the Mitchell Conveyor & Transporter Co. Ltd.

The economic advantages of softening and suitably conditioning feed water for use in locomotives were next touched upon, and a water softening plant made by Horseley Bridge & Thomas Piggott Limited and representative of many recently installed was illustrated. The water dealt with by this plant had a maximum hardness of 30 degrees English and the apparatus was designed to reduce this hardness gradually to three degrees or to any intermediate figure desired. The entire plant took no more than one hour a day of the attendant's time and the cost of treatment, including labour, worked out at approximately a penny and a fraction for every 1,000 gallons of water treated. The corresponding savings effected in locomotive repairs and running time were expected to be considerable.

Ash disposal next received attention, and a typical plant for removing the ash from locomotive smokeboxes was described, this being in use on the Great Western Railway. The average time taken for each smokebox was stated to be about 6 or 7 minutes, the longest on record being 12 minutes. A " King " class smokebox took about 8 minutes. A plant in use on the L.M.S.R. was also dealt with.

Mechanical degreasing and deoiling plant for the recovery of oil from sponge cloths and waste used for engine cleaning was a further source of economy and the operation of a plant for this purpose was also described. The lecture was illustrated by a large number of slides and proved most interesting to the appreciative audience fortunate enough to be present at it.

RAILWAY AND OTHER MEETINGS

BENGAL DOOARS RAILWAY CO. LTD.

The 44th ordinary general meeting of the stockholders of the Bengal Dooars Railway Co. Ltd., was held on Tuesday, November 13, at the offices of the company, Gresham House, Old Broad Street, E.C.2., Sir Henry P. Burt, K.C.I.E., C.B.E., (Chairman of the company) presiding.

The Secretary (Mr. F. J. Horne) read the notice convening the meeting and the auditors' report.

The Chairman said that, as usual, he proposed with the meeting's concurrence to take the directors' report and accounts for the year ended March 31, 1934, as read. He thought they would agree that the results for the year under review were not unsatisfactory in view of the fact that the standards of prosperity of commercial and industrial enterprises throughout the world were still far below what had heretofore always been considered to be the normal.

He was pleased to be able to report that notwithstanding that the rainfall recorded at the end of last September was 16 inches above normal, their protection works and spurs had successfully withstood the strain, and no damage had been sustained. No later reports in this connection having been received from their Manager, Mr. J. A. Polwhele, he thought they could assume that there was now no further cause for anxiety in this direction until the next monsoon broke.

As he had previously stated, constant and unremitting watch was maintained and precautions taken to guard against erosions and flooding. A careful study was made of the frequent changes in the flow of the rivers during the monsoon seasons and all possible steps were taken by the construction of protective works to combat them—and he was of opinion that the expenditure so far incurred to that end had been fully justified by results.

They, the Directors, experienced great anxiety when the news was first received of the earthquake which occurred in India on January 15 of this year. Their anxiety was, however, entirely allayed by reports from their Manager that with the exception of cracks in a few buildings, which it was estimated would cost only about £100 to repair, no damage had been sustained by their property. While he was sure they all felt the deepest sympathy with those who had suffered so severely from this great catastrophe, it was cause for congratulation that the company escaped from what might have been disastrous losses. With this exception the year under review had passed without incident of moment.

With regard to the year's working their coaching traffic receipts showed a decrease of about Rs. 6,500, being Rs. 3·96 Lakhs as compared with Rs. 4·03 Lakhs for the previous year. This decrease was in the third class passenger traffic and was mainly due to motor vehicle competition.

Against this small decrease in coaching receipts those from goods traffic were Rs. 15·59 Lakhs, against Rs. 15 00 Lakhs for the year ended March, 1933, an increase of Rs. 59,000. The bulk of this increase was from the carriage of "food grains" and "fuel for the public," the latter principally for the tea gardens.

Tea Tonnage Restrictions

In consequence of the restrictions placed on the tonnage of tea which the industry was allowed to export for sale, a somewhat heavy reduction of Rs. 99,000 in receipts from the carriage of that commodity was experienced, but this was fortunately offset by substantial improvements in the receipts from the following commodities, viz.: food grains, Rs. 62,000; fuel, Rs. 52,000; fertilisers, Rs. 29,000, and jute, Rs. 16,000. The foregoing increases, together with small fluctuations in the receipts from the carriage of other commodities, gave the aggregate total he had mentioned.

Their ferry service showed increased earnings of about Rs. 7,300 and miscellaneous earnings a small decrease. As regarded their working expenses, there was an increase of Rs. 54,700, the percentage to gross earnings being 58·67 or 1·06 higher than for the previous year. This was principally accounted for by heavier expenditure on repairs to bridges and buildings and permanent way maintenance.

As stated in the directors' report, 5·51 miles of branch line from Domohani to Barnes Ghat, the construction of which was necessitated by the breaching of the railway in 1931, which destroyed direct communication with Barnes Ghat, was opened to traffic on June 1, 1933.

He would now deal with the net revenue account (Account No. 8), which, as they would have noted, showed, after making allowance for the payment of Indian income tax and super tax, aggregate earnings of £55,776. (A decrease of £1,205 compared with the previous year.) Add to this the balance of £53,707 brought into account from the previous year and they had a total of £109,483. From this must be deducted the preference stock dividend £14,400 and reserve for income tax £2,500, leaving £92,583.

The sum of £9,910 had been carried to reserve and an interim dividend of 3 per cent. was paid on the ordinary stock on April 20, 1934, absorbing £12,000, leaving a balance of £70,673 to be now dealt with.

From this sum the Board recommended the payment of a final dividend of 4 per cent. on the ordinary stock, making a total distribution of 7 per cent. for the year, and leaving £57,673 to be carried forward, as compared with £53,707 brought in from the previous year.

With regard to the current year, they would probably have seen from the figures advertised in the press that traffics showed an improvement of Rs. 35,308 for the period ended October 20, 1934, as compared with the previous year, the total receipts for that period being Rs. 11,21,849 in 1934, against Rs. 10,86,541 in 1933.

As to the prospects of the current year, trade generally had improved, and it was hoped that this improvement would be maintained and that the earnings would exceed those of last year, but so long as the export of tea was restricted they could not look for any appreciable increase in receipts for that commodity. Unfortunately for them, the Government of Bengal had now conceived it to be its duty to inaugurate a campaign in favour of restricted sowings of jute. These two commodities were of very material consequence to the company, as stockholders knew.

Motor Competition Increasing

The competition by motor vehicles to which he had referred was, unfortunately, steadily increasing. This competition was mainly brought about by vehicles licensed to carry passengers only, and although their passenger traffic was thereby affected, these vehicles, without being licensed for that purpose, were carrying goods, which was obviously detrimental to their goods traffic receipts.

These contraventions of the regulations had been reported by their Manager to the Deputy Commissioner and to the Superintendent of Police, and some prosecutions had been instituted, but the fines inflicted were so insignificant that they had no deterrent effect. In an effort to combat this competition the Board reduced the rates on such goods as these vehicles chiefly carried, but without beneficial results, as although their own tonnage carried increased, their earnings fell.

He feared they could never entirely stop this traffic, which consisted of miscellaneous goods in small consignments purchased by petty shopkeepers and traders who attended the numerous small weekly markets in the districts.

Under the existing Indian Railway Acts, railways were unable to adopt the necessary measures to compete successfully with such competition, and the whole question is now receiving the serious attention both of the authorities and of railway companies in India with a view to bringing motor transport under effective regulations, inspection and control.

He could not conclude without referring to the excellent services

rendered by their staff of all ranks in India, both European and Indian, and to the efficient manner in which the work of the London staff had been conducted, to all of whom they owed thanks. He now moved:—

"That the report of the directors and the audited statement of accounts for the year ended March 31, 1934, now presented, be and they are hereby approved, confirmed and adopted."

Sir A. Kay Muir having seconded,

The Chairman intimated his readiness to answer any questions, but as none were forthcoming the resolution was put to the meeting and unanimously adopted.

The Chairman then moved:—

"That a final dividend of 4 per cent. on the ordinary stock of the company for the year ended March 31, 1934, subject to income tax, making, with the interim dividend of 3 per cent. paid on April 20, 1934, a distribution of 7 per cent. for the year, be and it is hereby declared to be paid to the holders of ordinary stock standing on the registers of the company on October 31, 1934, and that warrants for the dividend be issued on November 14, 1934."

Mr. R. Langford James seconded and the resolution was agreed to.

The Chairman, in moving the re-election of Mr. G. Anson Bayley, the director retiring by rotation, observed that that gentleman's services were of the greatest value to the Board, having regard to the large experience he had had of railway matters in India.

The resolution was seconded by Mr. J. A. Tassie and carried unanimously.

Messrs. W. A. Browne & Company having been elected as auditors of the company for the ensuing year at a remuneration of 70 guineas.

The Chairman proposed that a hearty vote of thanks be accorded to the company's Agents in Calcutta, and to the Manager and his staff in India. He added that they had not, perhaps, had such a trying time as on a previous occasion, but the Board were, nevertheless, very grateful to them for all they had done in the interests of the company.

Mr. G. Anson Bayley seconded and the resolution was unanimously adopted.

A vote of thanks to the Chairman and Directors, proposed by Mr. H. C. K. Stileman, brought the proceedings to a close.

LONDON TRANSPORT POSTERS.—London Transport station hoardings have recently been enriched by the addition of a fine aerial view of the famous "Pool of London." It takes the form of a large and finely-coloured poster, the work of Mr. Fred Taylor, the well-known artist, and shows him at his best. Three smaller posters, which are also being exhibited, are additions to the series labelled "At London's Service." Two of them are by Mr. Walter E. Spreadbery and one by Mr. A. A. Moore, and all three are very charming.

BUENOS AYRES WESTERN RAILWAY LIMITED

The 45th ordinary general meeting of the Buenos Ayres Western Railway Limited was held at River Plate House, Finsbury Circus, E.C.2, on Wednesday, November 14, Sir Follett Holt, K.B.E. (Chairman of the company), presiding.

The Secretary (Mr. Robert Graham) read the notice convening the meeting and the auditors' report.

The Chairman, in moving the adoption of the report and accounts, said the Board met them that day with a sense of great disappointment at being unable to recommend the payment of a dividend to some 20,000 holders of the £17,000,000 of ordinary stock of the company.

They survived the lack of marketability of wheat and maize and the devastating fall in their price level, but they could not withstand the further fall in the exchange which occurred. In November from one moment to another the value of the peso expressed in sterling was severely cut and the average rate at which their remittances were received for the twelve months worked out at 21 per cent. less than in the previous year. Had the exchange rate been the same, their remittances would have been better by £132,000, and the position of the ordinary stockholders would have been to that extent improved.

Apart from suffering this heavy reduction in the sterling value of their earnings, they experienced in the early months great difficulty in securing remittances at the official rate. At a later date, fortunately, these came over much more freely, but even so in order to provide additional sterling to meet their needs they found it advisable to sell their holding in local Government bonds in Buenos Aires and at a favourable opportunity remit the proceeds through the free exchange market. With this supplement to their sterling resources they had been able to meet all claims for income tax and provide for the payment of the preference dividends, thus maintaining an unbroken record without incurring an overdraft with their bankers.

Shareholders would have noticed in the report that no provision was made in the year for renewals. In the long period of comparative prosperity they were able, fortunately, to make substantial allocations to the renewal fund, and it was therefore considered possible during this bad cycle to call a temporary halt, which, however, could not be continued indefinitely. On the other hand, science was assisting to relieve the pressure on railway renewal funds. Water conditioning, electric welding, improvements in the maintenance of rail joints and accessories, all tended to prolong the life of materials, and they could also look forward to benefit from the great advance in the manufacture of metals which should bring them in a few years' time passenger trains of half their present weight running at higher speeds with much less wear and tear, and all would help.

In the earlier part of this year the position with exchange and other subjects having become perplexing, he went to Argentina, and there it was indeed encouraging to find that the highest in the land realised the difficulties with which the railways were surrounded and were anxious to find means by which such a vital industry should again be placed in a more stable position.

Road Competition

It was common knowledge that with the intrusion of road transport and the consequent loss of their monopoly as transporters, the Argentine railways, hedged in as they were by every conceivable law and regulation, found themselves at a complete disadvantage when competing with road transport, which remained entirely untrammelled. Omnibus and lorry owners worked the hours they liked and charged the rates they liked, and this untrammelled competition not only affected the financial structure of the railways and called for remedy, but called also for every reasonable effort from the men they employed, if only to save the source of their employment and prevent it from being partially or wholly destroyed. In Argentina now, as already had happened in most countries, the Government was being asked to exert a reasonable control over road transport and at the same time give to the railways a greater flexibility in the rates they charged, and the men were being asked to give all reasonable flexibility in their service in the protection of their employment. As far as road transport was concerned, the Bill designed to afford reasonable control over services and tariffs was not dealt with at the last Session of Congress, but through the intervention of H.E. the President it was to be considered at the extra session now sitting, and the Board were hoping that it would shortly become law, in order that the transport of the country might be conducted in the modern and orderly way.

The discussions of questions affecting the wages and conditions of railway labour had been troublesome and prolonged, and when they finally reached a deadlock a short time ago, H.E. the President consented to accept the perplexing and difficult task of arbitrator. His award was promptly given. Some years ago a reduction in wages was agreed to by labour, the railways undertaking at the same time to suspend the further dismissal of surplus staff. This year, under the improving outlook, labour demanded the restitution of the reductions, which the railways were not in a position to grant, as their business had become worse and not better. The presidential award provided that under certain conditions the reductions should be restored, and this provision affected different companies in different ways, but it meant to their company that

at least some percentage would be restored in the current year.

Through the depreciation in the value of the peso Argentina had undoubtedly been able not only to avoid any grave internal crisis but to resume its march of progress and development. The progress now being made must be reflected ultimately in the betterment of the affairs of the public utility undertakings serving the country, some consolation for the fact that they were meanwhile suffering the full adverse force of this depreciation. Their company, amongst others whose obligations were in sterling, was called upon to face and was facing, the difficult problem of re-adjusting its organisation and affairs to the new and lower sterling value of its earnings in order to return to the dividend-earning basis of four years ago.

With fair crops and improving conditions in the whole country, they should doubtless be able to obtain their share of the increased business which should accrue, and in order that shareholders might judge of progress as it might come, he would venture to give them an idea of the additional peso earnings which would be required to reach again a more desirable position. They earned last year 41,375,000 pesos, and, always provided that exchange did not break lower than the present level and they were able to hold their expenditure, he calculated that they should require 10 per cent. more pesos to earn 1 per cent., and a further 6·9 per cent. for each additional 1 per cent. on their ordinary stock. So far as they had gone this year their peso receipts were 5 per cent. higher than for the same period of last year, which showed that at least some progress had been made in the right direction at this early stage.

Diesel Traction Progress

One of the directions they were looking to in the Argentine to bring a future substantial reduction in working costs was that of diesel traction, and fortunately Sir Brodie Henderson, their consulting engineer, who had devoted so much skilled attention to this subject, was able to be with him (the Chairman) during his visit and to make a study of the company's requirements. They had already two diesel-driven passenger cars sent out by Messrs. Armstrong Whitworth under trial, and two further cars were due for delivery early next year. Their intention was to recapture in the more outlying districts traffic that had been lost to the roads by providing eventually sufficient similar equipment which would give a service more rapid, frequent, and economical than was possible with ordinary locomotives and trains.

"We on this side of the table," said the Chairman, in conclusion, "have not lost any of our faith in the potentialities of the Western Railway, and given that the peso has not to undergo a further relapse, we believe that our railway will not be the last to get on its legs again as the country recovers from the past few bad years."

The resolution was unanimously adopted.

CENTRAL ARGENTINE RAILWAY LIMITED

The ordinary general meeting of the Central Argentine Railway Limited was held at River Plate House, Finsbury Circus, E.C.2, on Thursday, November 15, Mr. W. K. Whigham (Chairman of the company) presiding.

The Secretary (Mr. F. Fighiera) read the notice convening the meeting and the auditors' report.

The Chairman, in moving the adoption of the report and accounts, said that the gross receipts for the year amounted to £9,871,000 (he was taking round figures), an increase of £122,000; working expenses, on the other hand, at £7,211,000, showed a decrease of £638,000, and, accordingly, the balance amounted to £2,660,000, an increase of £760,000 over last year. The gross receipts, however, included a sum of £646,000 (part of the £920,000 shown in Account No. 5 on page 15 of the report) of bills and bonds collected in respect of Government traffics relating to previous years and which the Board were able to use in subscribing for Argentine Government bonds under the "Roca" Agreement, which bonds were in turn exchanged for cash and securities of the United Kingdom and Argentine 1933 Convention Trust.

These figures were, as usual, based upon the par of exchange. To set this right, one was forced to deduct from the £2,660,000 no less a sum than £1,005,000, being exchange differences for 1933-34, as against £365,000 for the previous year, leaving the actual net receipts at £1,655,000 this year, compared with £1,535,000 last year, an increase of £120,000. The rate of working dropped from 80·51 per cent. in 1933 to 73·05 per cent. in 1934, a decrease of 7·46 per cent. This was due, however, partly to the large special Government traffic collections just mentioned and to the smaller allocation to the renewals fund. Omitting these special collections from the Government on one side of the account and allocations to the renewals fund on the other side, the gross receipts showed a decrease of £525,000 and the working expenses a decrease of over £300,000. That, he submitted, might be considered very satisfactory, showing how carefully expenditure was being controlled.

Regret had already been recorded in the report that the small balance of net revenue for the year had rendered impossible the declaration of any profits available for dividend for the year 1933-34. On the other hand, they were glad to announce on the 1st instant that a payment of 2¼ per cent. would be made on account of the dividend of 4½ per cent. declared on the 4½ per cent. preference stock in respect of the year 1932-33, and the warrants were being posted that night.

After dealing somewhat fully with the questions of exchange and remittances, the Chairman said the capital expenditure for the year had come down from £611,000 in 1932/33 to £229,000 for last year. What had been spent on capital account had been strictly limited to expenditure on works required to ensure economical operation or to add to works of a revenue producing nature. He need hardly say that capital expenditure would continue to be rigorously restricted to the lowest possible figure compatible with the proper upkeep of the railway and its necessities. The construction of the Forres branch, the completion of one or two short feeders and of the electrification of the suburban lines, had contributed towards their being £5,780,000 overspent on capital account and this explained the large loan which they had had from their bankers.

The Harbour Question

As soon as the results for the year ended June 30, 1933, were available they approached the Government, and with their intervention an agreement was arrived at between the labour unions and themselves. Under this agreement, wages were reduced in the case of the company by 3·3 per cent. as from September 1, 1933, and by 5 per cent. from January 1 this year. Owing to the increase in their gross receipts in "pesos," the 5 per cent. had to be reduced to 3·3 per cent. as from October 1. Under the President's award this 3·3 per cent. reduction might before long have to cease automatically, but the companies looked for any real benefit to the promise held out in that document of a better utilisation of labour and a modification in the regulations.

With respect to road competition, the position remained much as it was twelve months ago. Trunk roads were being constructed between Buenos Aires and Rosario, a large mileage of which paralleled their main line. On the east side of their railway lay that vast navigable River, the Paraná, running between Buenos Aires and the North of Santa Fé. They had survived this very violent River competition for many years, and whilst, of course, it could not be denied that they were now threatened on the west side, they felt that the authorities must finally recognise that the vast millions spent in railway construction would have to be protected from possible disaster. Towards this end the Executive Power introduced a Bill into the National Congress over two years ago in order to place the competition by road on a more equitable footing than obtained to-day, but, unfortunately, this Bill had so far not been approved by Congress. It, however, afforded evidence of the goodwill of the National Government in seeking to minimise unfair competition between road and rail, and this was further demonstrated by the Bill being included by the President of the Republic among the matters on the

agenda for the Extraordinary Sessions which were now being held. Whether Congress would approve it or not remained to be seen.

As mentioned on previous occasions, they had organised a certain amount of road transport by bus and by lorry in order to counter competition, but the only true solution must be the establishment of equality in operating conditions as between road hauliers and railways, a problem which the road transport bill alone could equitably solve.

He would like to refer for a minute to the speech of the Chairman of the Buenos Ayres Great Southern Railway, Sir Follett Holt, in which he spoke of collective effort on the part of all the railways. He could assure that gentleman that the Central Argentine would do its part, as it was a principle he (the speaker) had striven to uphold.

Mr. Howard-Williams's visit to the Argentine synchronised by arrangement with the presence there of directors representing some of the other British railways, and for part of the time Lord Forres was also with him. Many useful meetings were held which would result, he was sure, in strengthening and extending the spirit of co-operation. A crisis of such magnitude as the one through which they were still passing, forcibly brought home to everyone the necessity for facing their troubles with a united front, and he could truthfully say that the relationship between the railways, both in London and the Argentine, was more cordial and one-minded than it had ever been before.

The Future

In conclusion, he would venture to express the hope that, in the near future, they might have some tangible relief from the burden of exchange differences ; for these they were not responsible, either in Argentina or in London ; it was a problem entirely beyond their control. It was too much to expect that the year 1934-35 should see a return to normality, but he was convinced that, when the turn for the better did come, when this world crisis disappeared, gradual as might be the process, Argentina would be among the first to profit by the change, and, although one had in the last two or three years been experiencing a measure of adversity, their faith in the future of that country and in the future of Argentine railways in general and of their own in particular remained entirely unshaken.

The resolution was agreed to.

The meeting closed with a hearty vote of thanks to the Chairman and his colleagues, the General Manager and staff in Argentina and the Secretary and London staff. In this connection, special reference was made to the services of Mr. W. Howard-Williams, C.B.E. Deputy-Chairman, which Mr. Whigham, in acknowledging the vote, said he very greatly appreciated.

RAILWAY AND OTHER REPORTS

West of India Portuguese Railway.—A dividend of 2½ per cent., together with a bonus out of reserve of 1 per cent., making 3½ per cent. for the half-year to December 31 (the same as a year ago), will be payable on January 15.

Villa Maria & Rufino Railway.—The company has received for the year to June 30, 1934, from the Buenos Ayres & Pacific Railway Company the £26,940 required to meet the interest on the first debenture stock. The Pacific Company has been unable to make any payment in respect of arrears of dividend on the 4½ per cent. guaranteed stock. The Stockholders' Committee has further extended the moratorium period to June 30, 1935.

Argentine Great Western Railway.—This company's lines are worked by the Buenos Ayres and Pacific Railway Company. In respect of the year ended June 30 last, the amount received from the Pacific Company under this agreement was £68,000 (the same as in 1932-33), which has been distributed as interest for the year on the first debenture stock. In consequence of the restrictions on cash remittances from Argentina, the Pacific Company has been unable to pay any sums on account of the arrears of interest and dividend on the Great Western Company's debenture and guaranteed stocks, the payment of which was postponed under the moratorium scheme of 1932. Again no dividend is declared on the preferred or ordinary stock. The balance-sheet shows the amount due from the Pacific Company under the working agreement, &c., at £1,424,047 (against £827,802). The Stockholders' Committee has now further extended the moratorium period in respect of debenture interest and guaranteed preference dividend until June 30, 1935.

Argentine North Eastern Railway.—Gross receipts for the year ended June 30 last were adversely influenced by commercial inactivity and another invasion of locusts (which damaged the plantations of citrus trees and consequently affected the quantity of fruit for transport), with the result that they declined by £18,084, compared with 1932-33, to £549,778. Working expenses, however, were reduced by a further £11,056, so that the net receipts were only £7,028 less at £100,993. After charging the full debenture interest and providing for an exchange loss of £41,458 on remittances, there was a net loss for the year of £77,711 (against £19,175), which increases the debit balance carried forward to £149,169. Payment of the interest on the B debentures and B debenture stock has been postponed in accordance with resolutions passed in July, 1932 ; this moratorium expires on December 31, 1934. In view of the time required for the district served by the railway to recover from the very unfavourable conditions prevailing during the last two years, the directors consider it will be necessary to request some renewal of the moratorium. No allocation has been made to renewals reserve ; expenditure on renewals, amounting to £26,245, has been charged to this reserve, reducing it to £140,686.

Stothert & Pitt Limited.—Accounts for the year ended June 30 show a profit of £11,896 (against a loss of £24,666 for 1932-33). This figure includes £5,000 previously reserved against a special debt and now no longer required. A half-year's payment on the preference capital is being made.

British Electric Traction Co. Ltd.—The directors have declared the following interim dividends on account of the current financial year payable on December 15, to stockholders registered in the books of the company on November 14 :—3 per cent. on the 6 per cent. cumulative participating preference stock (the same) ; 4 per cent. on the 8 per cent. non-cumulative preferred ordinary stock (the same) ; 2½ per cent. on the deferred ordinary stock (the same).

Foreign Railways Investment Trust Limited.—Revenue of this trust, the investments of which consist largely of ordinary stocks of South American railways, was slightly higher in the year ended October 31, at £7,275, against £6,245 for 1932-33. After providing for interest and expenses there is a deficit of £241, against £369, which reduces the credit balance to go forward to £45,075. The dividend on the £1,500,000 of 5 per cent. preference stock is in arrear as from November 18, 1930.

Chloride Electrical Storage Co. Ltd.—The directors have decided to pay on December 1 an interim dividend of 5 per cent. on the A and B ordinary shares (unchanged). The progress of the company and of its associated companies so far during the current financial year has been maintained. Trading continues to be subject to the influence of many factors, mainly of political origin, which hamper or unexpectedly nullify traders' efforts, but the immediate prospects are satisfactory.

Associated Equipment Co. Ltd.—The directors have resolved to recommend to the stockholders in respect of the 12 months ended September 30, 1934, the payment of a final dividend of 10d. per unit of £1 stock after deduction of tax (approximately 5⅜ per cent. actual, subject to tax). This, together with the interim dividend of 5d. per unit of £1 stock, after deduction of tax, already distributed (approximately 2⅛ per cent. actual, subject to tax), makes a total dividend for the year of 1s. 3d. per unit of £1 stock after deduction of tax (equal approximately to 8⅛ per cent. actual, subject to tax).

QUESTIONS IN PARLIAMENT

London Transport Board's Increased Train Services

Mr. Hutchison asked the Minister of Transport on Wednesday (November 7) what additional services had been provided since the London Passenger Transport Board took over the responsibility for London transport; and whether any information was available as to how the average speed of omnibuses and underground transport had increased since that date.

Mr. Hore-Belisha, in a written answer, after detailing the tramway and omnibus additions, stated:—The Piccadilly tube has been extended from Enfield West to Cockfosters, and the service on the Piccadilly line extended from South Harrow to Uxbridge, so that there is now a through service between Uxbridge and Cockfosters, a distance of nearly 32 miles. Increased services have been provided on the Stanmore branch line, and a connecting service between the Metropolitan and District lines has been instituted at Whitechapel . . . On the railways the journey time on the Inner Circle has been reduced by 3½ minutes in slack hours. Accelerations have also been made in the journey times on the Piccadilly, Bakerloo, and Central London tubes.

Railway Company as Road Licence Objector

Lord Scone asked the Minister of Transport on Thursday (November 8), if he was aware that the traffic commissioners for the Scotland (Northern) area had refused Mr. Melville Ross, Forgandenny, Perthshire, permission to transport coal or livestock outside a radius of eight miles from Forgandenny, to carry more than 112 lb. of goods outside a radius of three miles, and had refused to allow him to carry out any removals at term day; if he was aware that the railway company, the sole objector to Mr. Ross receiving a full licence, could offer to the district only inadequate facilities for transporting coal, livestock, and goods, and none at all for term-day removals; and whether he could state if Mr. Ross had yet lodged an appeal and when the appeal was likely to be heard.

Mr. Hore-Belisha:—I have no information regarding the case mentioned by my hon. friend. The licensing of goods vehicles rests with the licensing authorities appointed under the Road & Rail Traffic Act, 1933, who are not subject to my directions, and the appeal from any decision of a licensing authority lies to an independent appeal tribunal.

Priority of Electrification

Mr. Cadogan asked the Minister of Transport on Monday (November 12) whether he had considered the petition from the councils of the boroughs of Finchley, Hornsey, and Hendon, and the urban district councils of Barnet, East Barnet Valley, Friern Barnet, and Wood Green, advocating the immediate electrification of that part of the system of the London & North Eastern Railway which served the areas of these local authorities; whether he had referred the petition for consideration to the L.N.E.R. and the London Passenger Transport Board; and, if so, whether he could give any information as to their replies.

Mr. Hore-Belisha:—The answer to the first two parts of my hon. friend's question is in the affirmative. As regards the third part, I am informed that the Standing Joint Committee of the main line railway companies and the London Passenger Transport Board has decided that a scheme for the electrification of the Great Eastern suburban lines based on Liverpool Street would take priority over a scheme for electrifying the lines radiating from King's Cross, but my hon. friend will be aware that these matters are not in any way under my control.

Mr. Cadogan:—May I ask whether, in view of the hopelessly inadequate travelling facilities in this district, the hon. gentleman would be prepared to re-open the matter with the undertakers and expedite the scheme referred to in this petition?

Mr. Hore-Belisha:—I will do all in my power. I have already done what I could by representing the matter to the London Passenger Transport Board, but I cannot exceed my powers.

Testing of Locomotives

Captain Erskine-Bolst asked the Minister of Transport on Monday (November 12) whether he was aware that there was no proper experimental testing station in this country for locomotives and that British locomotives had to be sent to France to be tested; and whether he would take such steps as might be necessary to ensure that the railway companies will collectively establish such a station.

Mr. Hore-Belisha:—I understand that this matter engaged the attention of the Department of Scientific and Industrial Research, in conjunction with the railway companies, some time ago and is again being considered.

Alleged Victimisation in India

Mr. Dobbie asked the Secretary of State for India on Wednesday (November 14) whether he was aware that a clerk, named B. K. Mukerjie, employed in the locomotive workshop of the Indian State Railways at Lucknow, was discharged on April 30, 1934, within a fortnight of organising a conference of the East Indian Railway Workers' Union, which was recognised by the railway administration; and if he would cause inquiries to be made.

Mr. Butler (Under-Secretary of State for India):—I have received the report of the Government of India on this matter. Mr. Mukerjie's discharge was not on account of his connection with the conference of Railway Workers held at Lucknow on April 15 and 16, 1934, but because his previous activities were considered to infringe the Government Servants Conduct Rules.

New Sleeping Cars for the L.N.E.R.

(*See illustrations on page* 802)

The four L.N.E.R. sleeping cars recently placed in the East Coast service, as recorded in our news pages last week, show notable improvements in the design of this type of vehicle, including the provision of a door between compartments to enable two to be made into a suite. The cars are 66 ft. 6 in. long over body and are mounted on two four-wheeler bogies. Accommodation is provided for ten passengers. Each berth has a communicating door, and a shower compartment is also provided in accordance with the company's latest practice.

It will be seen from the photographs reproduced on page 802 that the arrangement of the berths and fittings does not differ greatly from that of the previous cars of this type. The whole of the decoration of the walls has been carried out in Stipplex Rexine, but whereas in the previous cars blue stippled Rexine was used throughout, the present cars are finished in four different colours. Pastel shades are used throughout; two pairs of berths are decorated in green, one in pink, one in yellow, and one blue. The shower bath and lavatory are also decorated in blue Rexine. The partition between the centre pair of berths is so arranged that it can be folded back. The bed in one of this pair of berths can be removed, and by the provision of a small table and two chairs a self-contained suite can be provided.

Vi-spring mattresses are fitted throughout the vehicle, and the blankets are arranged to match the colour of the berths. The hot water for the wash basins in the berths and for the shower bath is heated by electricity generated on the vehicle. Air temperature-regulating apparatus on the Thermotank system has been provided, giving a supply of warm or cold air at will in the berths. These cars have been built at the Doncaster works of the L.N.E.R. to the designs of Mr. H. N. Gresley, the company's Chief Mechanical Engineer.

NOTES AND NEWS

The Royal Wedding.—Cheap bookings to London are being arranged by the railways for the wedding, on November 29, of the Duke of Kent to Princess Marina of Greece. Attention is drawn to the fact that the London railway hotels have bedroom accommodation for 1,000 visitors.

Industrial Information Bureaux.—To help manufacturers and traders to find suitable sites for their factories, and to advise on the removal of their undertakings into other areas, the railway companies have established industrial information bureaux at Paddington, Waterloo, Euston, and King's Cross.

Diesel Railcar order for S. America.—In our Contracts and Tenders section this week will be found particulars of an order for eleven diesel railcars placed with the Birmingham Railway Carriage & Wagon Co. Ltd. by the Entre Rios Railways. These cars are of streamlined contour, have two engines each, and include a buffet serving both 1st and 2nd class compartments.

Last of the L.N.W.R. "Jumbos."—L.M.S.R. locomotive No. 25001, *Snowdon*, the sole survivor in service of the famous "Precedent" class of 2-4-0 engines, introduced in 1874, has just been broken up. *Snowdon* was within a few months of completing 60 years of service. One of the class, the *Hardwicke*, is preserved by the L.M.S.R. as a locomotive of historic interest.

Electricity (Supply) Bill.—The Prime Minister, on November 8, in reply to a question from Mr. Lansbury, said it was anticipated that all outstanding business would be concluded in time to allow of Parliament being prorogued on Friday, November 16. The new Session would be opened on Tuesday, November 20. No time had been allowed for the Electricity (Supply) Bill [Lords] during the present Session. This Bill would be introduced at the beginning of the new Session and passed into law as expeditiously as possible.

Southern Railway Road Transport Orders.—Reference is again made in our Contracts and Tenders section this week to the recent Southern Railway orders for road transport vehicles, of which details appeared in our November 2 issue, and it is pointed out that these orders complete a £65,000 scheme begun in May, 1932, for the strengthening and modernisation of the company's fleet of road vehicles. The whole scheme has involved the construction of 79 motor lorries and parcels vans, 96 mechanical horses, and 207 trailers.

L.M.S.R. Diesel Shunter.—The last of the four diesel-mechanical shunting locomotives ordered by the L.M.S.R. from the Hunslet Engine Co. Ltd. has just been placed in service. It has a Paxman engine of 200 b.h.p., and weighs 30 tons. A three-speed gearbox is fitted and with normal engine revolutions gives speeds of 4, 8, and 13 m.p.h., with corresponding tractive efforts of 14,400, 7,200, and 4,400 lb. A Vulcan-Sinclair hydraulic coupling and a Humfrey-Sandberg free-wheel clutch are incorporated in the transmission.

New Greek Railway.—Difficulties in connection with payment have necessitated the temporary suspension of the construction of the new railway from Kalambaka to Verria which was being undertaken by the Société Commerciale de Belgique. Efforts are being made to raise a loan for the continuance of the work.

Tunisian Private Railway Results.—During 1933 the Sfax-Gafsa Railway, in Tunisia, carried 95,368 passengers compared with 103,880 in 1932, and 412,846 tons of goods against 366,332 tons. The revenue amounted to 11,969,003 fr. compared with 11,803,344 fr. in 1932. The slump in passenger traffic was principally due to road competition, notably between Gafsa and Tozeur, and the increase in goods traffic followed the improvement in the phosphate trade.

New London Coach Season Ticket Facilities.—As from Sunday, November 18, the London Passenger Transport Board is introducing season ticket facilities on all its coach routes operating in the London Transport area. Season tickets will be issued in two series, weekly and four-weekly. Weekly tickets will be obtainable from conductors on the coaches or at local depots. Four-weekly tickets will be obtainable on demand at local depots, at the office of the District Messenger Company, 229, Regent Street, or by application to the Coach and Country Services, general offices of the board, Bell Street, Reigate.

The Oriental Railways Company.—An Exchange Telegraph message from Vienna states that the Compagnie d'Exploitation des Chemins de Fer Orientaux, whose head office was, until 1910, in Vienna, and since then has been in Istanbul, is to be wound up. The majority of the shares are held by the Vienna Bankverein and the Deutsche Bank. As early as September, 1855, the Ottoman Government announced its intention of encouraging the construction of a railway joining Constantinople (now Istanbul) with Belgrade. After a long delay a concession was granted in 1869, and the Oriental Railways Company was formed. The line from Constantinople to Adrianople was opened in 1872 and completed to Belgrade in 1888. Many other lines were constructed, but the Balkan wars of 1912-13 and the European war, 1914-18, resulted in various sections passing into the hands of the States which took over portions of Turkey in Europe, and at present the only main line left is that from the Turkish frontier to Istanbul, which forms part of the main line to the East, and is used by the Orient expresses. The total mileage of the company is 338 km. of standard gauge.

Bulk Storage of Grain at L.N.E.R. Warehouse, Leeds.—In order to facilitate the bulk storage of grain at the March Lane warehouse, Leeds, of the L.N.E.R., special equipment is being provided, including a mechanical elevator and conveyor, so that grain may be handled without manual labour.

The Week's Road Accidents.—The Ministry of Transport return for the week ended November 10 of persons killed or injured in road accidents is as follows:—

	Killed	Deaths resulting from previous accidents	Injured
England	98 (121)	25 (33)	3,614 (3,710)
Wales ...	5 (5)	— (2)	138 (177)
Scotland	13 (13)	2 (4)	379 (343)
	116 (139)	27 (39)	4,131 (4,230)

The total fatalities of the week, as the result of road accidents, were therefore, 143, as compared with 178 for the previous week.

Electrically Controlled Gravity Marshalling Yards.—A paper, under the above title, was presented to the Institution of Railway Signal Engineers on the evening of Wednesday, November 14. The author was Mr. F. S. Jackson, a telegraph inspector at Sheffield, L.N.E.R. Instead of reading his paper, which dealt mainly with Whitemoor Yard, at the meeting, Mr. Jackson explained extempore the large number of photographs and diagrams that were shown on the lantern screen. Among those who took part in the subsequent discussion were Messrs. M. G. Trocedie—who described the electro-pneumatic installations at Banbury and Rogerstone, referred to in an editorial note in our issue of November 9—S. L. Glenn, Knotts, Proud, Pierce and Kubale.

Vassar-Smith Ambulance Shield Competition, Gloucester.—The Prince's Hall, Gloucester, was the scene of the seventeenth annual competition for the Vassar-Smith shield competition on Saturday last, November 10, when seven teams from the G.W.R. contested possession of the trophy. In addition, two individual competitions, a roller bandaging test and a first-aid test had been arranged. The adjudicators were Dr. F. H. Sprague and Mr. M. J. F. H. Stallman, and the competition attracted a large number of interested spectators. At the subsequent presentation proceedings, Mr. S. Morris, Divisional Superintendent and President of the Gloucester Ambulance Corps, presided, and was supported by the Mayor of Gloucester (Mr. W. H.

Nicholls) and Mayoress, Mr. L. J. A. Calloway, District Goods Manager, and other officers of the Company. The result of the competition was announced as under :—

Vassar-Smith Shield.—Team Test.—(1) "E" team, E. J. Colley (captain), T. Gwynn, B. Hawker, E. E. Townsend, 83 points. (2) "F" team, W. C. Drinkwater (captain), 73 points.
Roller Bandaging.—(1) J. Mumford, 29 points. (2) W. Flew, 28 points.
First-Aid Individual Contest (Non-Gloucester Members).—(1) F. A. Drinkwater, 34 points. (2) L. G. Robinson, 33 points.

The shield was presented to the winning team by the Mayoress, and individual prizes by Mrs. S. Morris. An interesting feature in the proceedings was the presentation of a cheque by the President, on behalf of officers and members of the Corps, to Mr. C. T. Drinkwater, Instructor of the Gloucester Ambulance Corps, to mark his forty years' ambulance activities, which had recently been recognised by his promotion as Officer in the Order of St. John of Jerusalem. Mr. Morris congratulated Mr. Drinkwater on his excellent record, dating from 1894, and on the assistance he had given in the training of ambulance men not only in the Gloucester G.W.R. Corps but also in outside organisations in the city, and on his valued services in times of accident.

Possibilities of Steel Construction.—In proposing the toast of "The British Steelwork Association," at the annual general meeting and luncheon on November 9, Lord Dudley suggested that there was wide scope for steel construction in the building of railway stations calculated to attract and hold passenger traffic. The distribution of power direct to the consumer, whether as gas or electricity, was also referred to as a possible factor in the reconsideration of existing terminal facilities. Some of the nation's enormous annual expenditure on roads might be well utilised in a concentrated programme to eliminate weak bridges, wherein, said Lord Dudley, "some of the pioneer spirit which gave us, in its day, the Forth Bridge, could well be revived by Mr. Hore-Belisha."

British and Irish Traffic Returns

GREAT BRITAIN	Totals for 45th Week			Totals to Date		
	1934	1933	Inc. or Dec.	1934	1933	Inc. or Dec.
L.M.S.R. (6,941¼ mls.)	£	£	£	£	£	£
Passenger-train traffic...	382,000	378,000	+ 4,000	21,653,000	21,317,000	+ 336,000
Merchandise, &c. ...	470,000	469,000	+ 1,000	20,036,000	18,724,000	+1,312,000
Coal and coke ...	260,000	247,000	+ 13,000	10,082,000	9,658,000	+ 424,000
Goods-train traffic ...	730,000	716,000	+ 14,000	30,118,000	28,382,000	+1,736,000
Total receipts	1,112,000	1,094,000	+ 18,000	51,771,000	49,699,000	+2,072,000
L.N.E.R. (6,339 mls.)						
Passenger-train traffic...	257,000	260,000	— 3,000	14,014,000	13,779,000	+ 235,000
Merchandise, &c. ...	360,000	359,000	+ 1,000	14,101,000	13,128,000	+ 973,000
Coal and coke ...	244,000	241,000	+ 3,000	10,147,000	9,352,000	+ 795,000
Goods-train traffic ...	604,000	600,000	+ 4,000	24,248,000	22,480,000	+1,768,000
Total receipts	861,000	860,000	+ 1,000	38,262,000	36,259,000	+2,003,000
G.W.R. (3,750¾ mls.)						
Passenger-train traffic...	166,000	164,000	+ 2,000	9,196,000	9,182,000	+ 14,000
Merchandise, &c. ...	187,000	188,000	— 1,000	8,077,000	7,585,000	+ 492,000
Coal and coke ...	102,000	105,000	— 3,000	4,428,000	4,349,000	+ 79,000
Goods-train traffic ...	289,000	293,000	— 4,000	12,505,000	11,934,000	+ 571,000
Total receipts	455,000	457,000	— 2,000	21,701,000	21,116,000	+ 585,000
S.R. (2,176 mls.)						
Passenger-train traffic...	240,000	237,000	+ 3,000	13,270,000	13,065,000	+ 205,000
Merchandise, &c. ...	63,500	64,000	— 500	2,866,500	2,752,500	+ 114,000
Coal and coke ...	30,500	32,000	— 1,500	1,375,500	1,299,500	+ 76,000
Goods-train traffic ...	94,000	96,000	— 2,000	4,242,000	4,052,000	+ 190,000
Total receipts	334,000	333,000	+ 1,000	17,512,000	17,117,000	+ 395,000
Liverpool Overhead ... (6½ mls.)	1,094	1,115	— 21	51,337	51,082	+ 255
Mersey (4½ mls.) ...	3,967	3,949	+ 18	182,171	178,709	+ 3,462
*London Passenger Transport Board ...	520,500	526,200	— 5,700	10,077,700	9,952,700	+ 125,000
IRELAND						
Belfast & C.D. pass. (80 mls.)	1,746	1,736	+ 10	114,685	116,249	— 1,564
,, ,, goods	549	513	+ 36	23,350	23,358	— 8
,, ,, total	2,295	2,249	+ 46	138,035	139,607	— 1,572
Great Northern pass. (562 mls.)	8,000	7,050	+ 950	451,750	351,800	+ 99,950
,, ,, goods	9,550	9,900	— 350	383,050	310,200	+ 72,850
,, ,, total	17,550	16,950	+ 600	834,800	662,000	+ 172,800
Great Southern pass. (2,158 mls.)	19,093	17,676	+ 1,417	1,087,626	1,073,972	+ 13,654
,, ,, goods	39,214	38,960	+ 254	1,472,888	1,395,806	+ 77,082
,, ,, total	58,307	56,636	+ 1,671	2,560,514	2,469,778	+ 90,736

* 19th week, the receipts for which include those undertakings not absorbed by the L.P.T.B. in the corresponding period last year ; last year's figures are, however, adjusted for comparative purposes

British and Irish Railways Stocks and Shares

Stocks	Highest 1933	Lowest 1933	Prices Nov. 14, 1934	Prices Rise/Fall
G.W.R.				
Cons. Ord. ...	55½	31	50	−½
5% Con. Prefce. ...	109¾	69½	115½	+2½
5% Red.Pref.(1950)	109¼	87½	110½	+1
4% Deb.	108 15/16	99¼	115	+3
4½% Deb.... ...	108	100¾	117½	+4
4½% Deb.... ...	116	106	125½	+3
5% Deb.	128	117¼	133½	+1
2½% Deb.... ...	65	60	72½	+1
5% Rt. Charge ...	124	111½	132½	+2
5% Cons. Guar. ...	122	103	130	+2½
L.M.S.R.				
Ord.	29⅞	12⅛	21½	—
4% Prefce. (1923)	51	17	50	—
4% Prefce. ...	72	33¼	85	+1
5% Red. Prf. (1955)	93	47¼	103½	+1
4% Deb.	103¼	89½	112½	+4
5% Red.Deb.(1952)	114	105	115½	—
4% Guar.	97¼	68⅜	105	+2½
L.N.E.R.				
5% Pref. Ord. ...	22½	7¾	15½	−¼
Def. Ord.	10¾	4⅛	7½	—
4% First Prefce. ...	65½	19⅜	69½	+1
4% Second Prefce.	40½	12¼	31	—
5% Red.Pref.(1955)	83¾	27	90½	+1
4% First Guar. ...	94¾	58¼	103	+3
4% Second Guar.	89¼	48	97	+1
3% Deb.	77	60¼	88	+5½
4% Deb.	102¾	80	112	+4½
5% Red.Deb.(1947)	112	102½	115	+2
4½% Sinking Fund Red. Deb.	107½	98¾	108½	—
SOUTHERN				
Pref. Ord.... ...	71	27¾	77	+2
Def. Ord.	24⅜	9⅜	22½	—
5% Prefce. ...	107 11/16	74	115½	+2½
5% Red.Pref.(1964)	107¾	78⅞	113½	+2
5% Guar. Prefce.	124¼	102¾	127	—
5% Red.Guar.Pref. (1957)	115⅝	103½	117	+1½
4% Deb.	107½	96¾	114	+3
5% Deb.	126½	114¼	131½	+2
4% Red. Deb. 1962–67	107¼	100	112½	+2
BELFAST & C.D.				
Ord.	6		5	—
FORTH BRIDGE				
4% Deb.	99½	95½	107½	+4
4% Guar. ...	98½	94	107½	+4
G. NORTHERN (IRELAND)				
Ord.	7½	3½	7	—
G. SOUTHERN (IRELAND)				
Ord.	28	16	16½	−1¾
Prefce.	24	12⅛	16½	—
Guar.	42	16¾	42½	−1¼
Deb.	60	30⅞	61	+1
L.P.T.B.				
4½% "A" ...	117⅞	112	125½	+3
5% "A"	127¼	119¼	133½	+2
4½% "T.F.A." ...	111¼	106	112½	+½
5% "B"	122½	114	129½	+3½
"C"	86¾	74½	92	+4
MERSEY				
Ord.	16¼	5	9	+1
4% Perp. Deb. ...	83	63⅞	86½	—
3% Perp. Deb. ...	62	51	65½	—
3% Perp. Prefce....	50⅝	27	46½	—

CONTRACTS AND TENDERS

Charles Roberts & Co. Ltd. has secured an order from the Director of Army Contracts for eight 20-ton all-steel self-discharging hopper wagons fitted with this firm's patent door gear.

Alexander Findlay & Co. Ltd. has received an order for one 90-ft. steel through span for the Peruvian Corporation.

Leyland Motors Limited has received orders from railway-associated road operators as follow :—Southdown Motor Services Limited, 12 Tigers; and Carter Paterson & Co. Ltd., one oil-engined Beaver chassis.

Henschel & Sohn has received an order for locomotive spares including wheels and axles, springs and copper plates for the Hanomag - built locomotives in service on the Morvi Railway.

The United Steel Cos. Ltd. has received an order for 20,000 steel sleepers for the Leopoldina Railway.

Bayliss, Jones & Bayliss Limited has received orders for 14,000 steel fish-bolts and 41,200 steel twin bolts for the Leopoldina Railway.

The Egyptian State Railways Administration has recently placed the following orders :—

Bochumer Verein : Wagons tyres to a total value of £380 5s. delivered f.o.b. continental port. (Ref. E.S.R. 21,227.)

P. & W. MacLellan Limited : Round mild steel to total value of £415 16s. delivered free Gabbaray Quay. (Ref. E.S.R. 1,161.)

Brown Bayley's Steel Works Limited : Helical springs to total value of £768 delivered f.o.b. Liverpool. (Ref. E.S.R. 21,209.)

A. Murray Wilson & Co. is to supply Clyde Superior soot blowers for the 33 HS-type boilers for H/4 2-8-0 locomotives, Great Indian Peninsula Railway, which, as recorded in this column of our issue of September 21, are on order from the Royal Hungarian State Iron Steel and Machine Works.

The South Indian Railway has placed the following orders for equipment to be supplied to the inspection of the consulting engineers, Messrs. Robt. White & Partners :—Crompton Parkinson & Co. Ltd., 9,300 electric lamps for train lighting, and English Steel Corporation and Samuel Osborn & Co. Ltd., cast steel files.

The Indian Stores Department has placed rate contracts for steel sections for the G.I.P., E.I., E.B., and Burma Railways with the United Steel Cos. Ltd.; for the N.W., Burma, and E.B. Railways with Dorman Long & Co. Ltd.; for the N.W. and E.I. Railways with Samuel Osborn (India) Limited; and for the G.I.P. Railway with the Exors. of James Mills Limited. Similar orders have also been placed with Osman Chotani & Co., Balmer Lawrie & Co., Burn & Co. Ltd., Martin & Co. Ltd., and the Solem Hardware Mart.

D. Wickham & Co. Ltd. has received orders for 48 petrol-driven No. 17 gang trolleys for the transport of permanent-way gangs. Of these 22 are for the Entre Rios Railways and 26 for the Argentine North Eastern Railway. A repeat order has also been received from each of these railways for one No. 8 inspection railcar.

D. Wickham & Co. Ltd. has also received orders for one No. 176 inspection railcar for the Great Western of Brazil Railway and 12 single-geared and four double-geared pump trolleys for the South African Railways and Harbours Board.

Diesel Railcars for S. America

The Birmingham Railway Carriage & Wagon Co. Ltd. has received an order from the Entre Rios Railways for eleven diesel-mechanical railcars of approx. 260 b.h.p. each. The cars will be of the double-bogie type with separate engines, one driving each bogie. The Gardner 5L3 heavy-oil engines will drive through a Vulcan-Sinclair hydraulic coupling and a Wilson preselective epicyclic gear box. The specification provides for an all-metal stream-lined body with driving controls at each end, a first class saloon seating 18 passengers, and a second class seating 36 passengers, a buffet accessible to each saloon, separate lavatories, luggage and mail compartments. J. Stone & Co.'s lighting, heating and ventilation systems and Air-Vac's roof ventilators will be employed. J. W. Roberts asbestos is to be used for insulation, and Lockheed hydraulic brakes will be used. The car body will measure 68 ft. 6 in. overall and the track gauge is 4 ft. 8½ in.

The Birmingham Railway Carriage & Wagon Co. Ltd. has also received an order from the Peruvian Corporation for ten 20-ton all-steel bogie covered goods wagons.

Taylor Bros. & Co. Ltd. has received an order for 40 pairs of solid forged and rolled steel wheels and axles for the ten 20-ton bogie covered goods wagons above mentioned on order for the Peruvian Corporation.

The South African Railways and Harbours Board is calling for tenders, to be presented in Johannesburg by December 17, for the supply of taper pins and flat cotters as required during the period July, 1935, to June, 1936. Further particulars can be obtained from the Department of Overseas Trade.

A new steel works will be established shortly at Belur on the East Indian Railway, eight miles from Calcutta, states *The Engineer*. It is expected that the machinery ordered for these works will arrive in India at the end of the year, and that production will start in May, 1935. With a capital of Rs. 50 lakhs, the new enterprise has Japanese financial backing to the extent of Rs. 1 crore. The journal quoted adds that the promoters propose to purchase part of the raw materials from the Tata Iron & Steel Company and part from foreign countries, and the new works will produce steel ingots, and steel parts, required by the railways, and manufacture screws, bolts, nuts, and wires.

Southern Railway Road Transport Orders

In this column in our issue of November 2, particulars were given, with the names of firms concerned, of orders placed by the Southern Railway for a total of 57 mechanical horses and 108 trailers for road service. These orders, to a value of £21,000, complete a scheme begun in May, 1932, for the strengthening and modernisation of the Southern Railway Company's fleet of road vehicles. The whole scheme cost nearly £65,000 and comprised the construction of the following new vehicles: 79 motor lorries and parcels vans, 96 mechanical horses, and 207 trailers.

Locomotives for Egypt

The last date for receipt of tenders in Cairo for 2-6-0 locomotives and tenders for the Egyptian State Railways, the inquiry for which was announced in our issue of November 2, in this and our Overseas sections, has been fixed as February 16, 1935.

The Agent, Great Indian Peninsula Railway, Victoria Terminus, Bombay, invites tenders, receivable by November 28, for copper plates and phosphor copper and for carriage and wagon and locomotive engine parts and fittings including axle boxes and mild steel panel plates.

The Agent, Eastern Bengal Railway, Calcutta, invites tenders, receivable by November 22, for one lakh rail anchors.

The Chief Controller of Stores, Indian Stores Department (Engineering Section), invites tenders, receivable by December 20, for quantities of axles, tyres, wheels, bolts and rings as follow required for the Great Indian Peninsula, Eastern Bengal and East Indian Railways as follow :—

G.I.P. Railway.—For coaching and goods stock, 5 ft. 6 in. gauge: 546 16-ton carriage and wagon axles; 2,500 ¾-in. bolts and nuts for Mansell type retaining rings; and 400 glut rings for 3 ft. 7 in. standard wheels.

G.I.P. Railway.—For electrified coaching stock, 5 ft. 6 in. gauge: 12 motor bogie axles; 50 disc wheel centres for motor coaches; and 1,150 steel tyres.

G.I.P. Railway.—For coaching and goods stock, 2 ft. 6 in. gauge: 24 disc wheel centres; and spare parts for locomotives, 5 ft. 6 in. gauge: 6 crank axles; 14 straight axles for engines and tenders; and 96 steel engine and tender tyres.

East Indian Railway.—571 locomotive tyres; 436 carriage and wagon tyres, 3 ft. 7 in. diam.; 196 straight axles for locomotives; and 14 crank axles.

Eastern Bengal Railway.—4 metre-gauge locomotive driving axles; 8 metre-gauge leading and trailing locomotive axles; 36 broad gauge carriage and wagon axles; 3 broad gauge locomotive bogie axles; 12 broad gauge locomotive driving axles; 1 broad gauge leading and trailing locomotive axle; 54 broad gauge steel locomotive tyres; 218 metre gauge tyres; and 120 broad gauge carriage and wagon tyres 3 ft. 7 in. diam.

The requirements of the North Western Railway will in all probability be included in the inquiry.

OFFICIAL NOTICES

South Indian Railway Company Limited.

THE Directors are prepared to receive Tenders for the supply of:—

1. STEEL BARS, SHEETS, Etc.,
2. MOIST ZINC WHITE PAINT.

Specifications and Forms of Tender will be available at the Company's Offices, 91, Petty France, Westminster, S.W.1.

Tenders, addressed to the Chairman and Directors of the South Indian Railway Co. Ltd., marked "Tender for Steel Bars, Sheets, etc.," or as the case may be, with the name of the firm tendering, must be left with the undersigned not later than 12 noon on Friday, the 30th November, 1934, in respect of Specification No. 1 and not later than 12 noon on Friday, the 23rd November, 1934, in respect of Specification No. 2.

The Directors do not bind themselves to accept the lowest or any Tender.

A charge, which will not be returned, will be made of 10s. for each copy of Specification No. 1 and 5s. for each copy of Specification No. 2.

A. MUIRHEAD,
Managing Director.

91, Petty France,
Westminster, S.W.1.
14th November, 1934.

THE Proprietors of British Patent No. 277607, "For Improvements in Draft Couplings for Tractors and Trailers," are desirous of entering into negotiations with interested parties for the granting of licences thereunder on reasonable terms or for the sale of the Patent outright.—Communications please address to MESSRS. DICKER, POLLAK & MERCER, Chartered Patent Agents, 20-23, Holborn, London, E.C.1.

OFFICIAL ADVERTISEMENTS intended for insertion on this page should be sent in as early in the week as possible. The latest time for receiving official advertisements for this page for the current week's issue is noon on Thursday. All advertisements should be addressed to:—*The Railway Gazette*, 33, Tothill Street, Westminster, London, S.W.1.

Forthcoming Meetings

Nov. 19 (*Mon.*).—**Central Uruguay Railway Co. of Monte Video Ltd.** (Ordinary General), River Plate House, Finsbury Circus, E.C.2, at 2.20 p.m.

Nov. 19 (*Mon.*)—**United Railways of the Havana and Regla Warehouses Ltd.** (Ordinary General), Winchester House, Old Broad Street, E.C., at 12 noon.

Nov. 20 (*Tues.*)—**Villa Maria & Rufino Railway Co., Ltd.** (Ordinary General), 69, Old Broad Street, E.C.2, at 12 noon.

Nov. 21 (*Wed.*)—**Sharpness New Docks and Gloucester and Birmingham Navigation Company** (Special General), Dock Office, Gloucester, at 2 p.m.

Nov. 23 (*Fri.*).—**Entre Rios Railways Co. Ltd.** (Ordinary General), River Plate House, Finsbury Circus, E.C.2, at 12 noon.

Nov. 23 (*Fri.*)—**Argentine North Eastern Railway Co. Ltd.** (Ordinary General) River Plate House, E.C.2, at 2.30 p.m.

CANADIAN NATIONAL EARNINGS.—For the month of September, 1934, gross earnings of the Canadian National Railways amounted to $14,940,269, an increase of $858,212 in comparison with September, 1933. Operating expenses ($12,930,026) at the same time advanced by $906,826, leaving net earnings $48,614 lower, at $2,010,243. Aggregate gross earnings from January 1 to September 30, 1934, were $121,962,709, an improvement of $13,746,429 on the first nine months of 1933, and there were net earnings of $7,142,504 contrasting with $907,372 for the first nine months of 1933.

CANADIAN PACIFIC EARNINGS.—Gross earnings of the Canadian Pacific Railway for the month of September, 1934, amounted to $12,043,000, an increase of $869,000 compared with September, 1933, and working expenses were $9,009,000, an increase of $839,000, leaving net earnings $30,000 higher, at $3,034,000. Aggregate gross earnings for the nine months January 1 to September 30, 1933, amounted to $90,901,000, an increase of $8,918,000 on the corresponding period of 1933, and the aggregate net earnings of $13,671,000 showed an improvement of $3,700,000.

CORDOBA CENTRAL PURCHASE RUMOURS—Lord Farrer, presiding at the annual meeting of the Cordoba Central Railway Company on November 14, spoke of rumours that negotiations were in progress for the purchase of the railway by the Argentine Government. He said that from time to time during many years there had been conversations and even negotiations on the subject, as could readily be understood, bearing in mind that the Cordoba Central was the direct line of the same gauge connecting the State lines of the north with the capital of the Republic. These talks had never come to any conclusion, and whether more recent conversations might bring results it was impossible to say.

MORE QUOTA NEWS FROM THE L.M.S.R. — The October issue of "Quota News," the official organ of the L.M.S.R. Quota League, records satisfactory passenger results during the past holiday season. The figures for July, August and September beat those for the same months of last year by a handsome margin, and although there is still much leeway to make up before the standard of 1929 can be regained, Mr. Ashton Davies, in an inspiring article, expresses his confidence in the ability of the staff and organisation to win back to the pre-depression level. The August "league tables" for August passenger traffics show an increase in receipts of £70,981 over 1933, with Belfast at the top with 119 per cent. of quota, Chester second (106 per cent.) and Dublin third (102 per cent.). Belfast and Chester have exchanged their former positions, and Dublin makes a surprising recovery from the ninth rank. In the goods results for the same month, the heavy industry centres take pride of place, Sheffield, with 111 per cent., coming up from second to replace Garston as leader, and Wolverhampton and Barrow tying second with 106 per cent., displacing South Wales.

Forthcoming Events

Nov. 8–24.—Machine Tool and Engineering Exhibition, at Olympia, London.

Nov. 17 (*Sat.*).—Permanent Way Institution (Manchester-Liverpool), at Blackburn, 3 p.m. "The Use of the Track in Wireless and Electricity," by Mr. T. R. Lever.

Nov. 19 (*Mon.*).—Wimbledon and District Model Railway Club, Alt Grove, St. George's Road London, S.W.19. "The Liverpool and Manchester Railway," by Mr. I. MacNab.

Nov. 20 (*Tues.*).—Industrial Transport Association, at British Iron and Steel Federation, Caxton House (East), Tothill Street, London, S.W.1, 6.30 p.m. "Compressed Gas for Motor Transport," by Mr. H. L. Pirie.

Permanent Way Institution (Scottish), at Royal Technical College, George Street, Glasgow, 7.15 p.m. "Maintenance of Track, N.E. Area, L.N.E.R.: System and Procedure," by Mr. F. E. Harrison.

Nov. 21 (*Wed.*).—Institution of Locomotive Engineers (Birmingham), at Queen's Hotel, 6.45 p.m. "Modern Tools in Locomotive Shops," by Mr. D. H. Keene.

Nov. 22 (*Thurs.*).—L.N.E.R. (York) Lecture and Debating Society, at Railway Inst., Queen Street, 7 p.m. Debate with Darlington Society. "That the Types of Passenger Fares at Present Available are Calculated to Produce the Maximum Passenger Nett Revenue." *Affirmative:* York Society. *Negative:* Darlington Society.

Nov. 23 (*Fri.*).—Railway Operating Division (R.E.), at Trocadero Restaurant, Shaftesbury Avenue, London, W.1. Re-union Dinner.

Stratfordians' Association, at Abercorn Rooms, Great Eastern Hotel, Liverpool Street, London, E.C.2. Re-union Dinner.

Nov. 26 (*Mon.*).—G.W.R. (Birmingham) Lecture and Debating Society, at Great Western Hotel, Snow Hill Station, 6.30 p.m. "Road and Rail Traffic Act, 1933," by Mr. D. Hawkeswood.

Nov. 27 (*Tues.*).—L.N.E.R. (Middlesbrough) Lecture and Debating Society, at Cleveland Scientific and Technical Inst., Corporation Road, 7.15 p.m. "A Works Railway," by Mr. J. H. Baker.

Nov. 28 (*Wed.*).—L.N.E.R. (Newcastle and Sunderland) Lecture and Debating Society, at Sunderland, 7 p.m. "The Advantages of the New Block Regulations," by Mr. F. Moiser.

Nov. 29 (*Thurs.*).—G.W.R. (London) Lecture and Debating Society, in General Meeting Room, Paddington Station, 5.45 p.m. "Getting and Holding Traffic," by Mr. F. W. Lampitt.

Institution of Locomotive Engineers (London), at Inst. of Mechanical Engineers, Storey's Gate, S.W.1, 6 p.m. "Ejectors," by Mr. C. Arnold.

Nov. 30 (*Fri.*).—L.N.E.R. Musical Society, at Hamilton Hall, London, E.C.2, 8 p.m. Bohemian Concert.

Railway Share Market

The further strong upward movement in British Government securities, which has been in evidence this week (a Treasury conversion operation is being predicted in the market), has naturally lowered the already small yields on gilt-edged stocks. The continued fall in the rates obtainable for investment in the latter has resulted in a larger demand for the debenture stocks and first preference stocks of the Home railways.

L.M.S. first preference was bought in response to the growing belief in the market that its dividend may be met in full, and the 1923 preference was also better on balance, while L.N.E. second preference has been purchased on the improvement continuing to be shown in the iron and steel industry. The first preference also moved in favour of holders; the market is estimating that the greater part of the dividend on this stock will be paid. Southern preferred continued in request. London Transport "C" stock, which was again a good feature on the more favourable views as to the dividend outlook, is now up to 92½ and is expected to go to par as time proceeds.

Argentine railway issues were rather firmer on the statements at the B.A. Great Southern and B.A. Pacific meetings. At that of the former company the chairman stated that if expenditure remains at the present level and the exchange continued steady, it would require an increase of about 13½ per cent. in the peso revenue to pay 1 per cent. on the ordinary. Cordoba Central issues were moderately lower on the denial of the revived rumour of negotiations with the Argentine Government for the purchase of the railway. B.A. Western is fractionally lower at 21½ as is Central Argentine at 15½. It may be recalled that in his statement the General Manager of the latter company considers there is now promise of better traffic receipts, as there is a strong demand for Argentine products.

Antofagasta was in better request and is moderately higher on balance at 23½, and Leopoldina improved to 9½. Nitrate Rails showed a somewhat improved tendency. San Paulo lost rather more than two points to 75.

Canadian Pacific common was more active and is fractionally better as is the 4 per cent. non-cumulative preference. Indian railway issues were in better demand, and on balance for the week are two points or more higher in a number of instances. French Railway sterling bonds also moved in favour of holders. Midi, Nord and Orleans all improved to 106.

Traffic Table of Overseas and Foreign Railways Publishing Weekly Returns

	Railways	Miles open 1933-34	Week Ending	Traffics for Week: Total this year	Traffics for Week: Inc. or Dec. compared with 1933	No. of Week	Aggregate Traffics to Date: Totals: This Year	Aggregate Traffics to Date: Totals: Last Year	Aggregate Traffics to Date: Increase or Decrease	Shares or Stock	Prices: Highest 1933	Prices: Lowest 1933	Prices: Nov. 14, 1934	Prices: Yield % (See Note)
				£	£		£	£	£					
South & Central America.	Antofagasta (Chili & Bolivia	830	11.11.34	19,580	+ 9,420	45	636,720	482,600	+ 174,120	Ord. Stk.	26	11¾	23	Nil
	Argentine North Eastern	753	10.11.34	5,909	— 1,605	19	145,164	182,142	— 36,978	,,	14½	5	9	Nil
	Argentine Trans Andine	111	—	—	—	—	—	—	—	A. Deb.	55	40	50	8
	Bolivar	170	Oct., 1934	5,600	+ 750	43	59,950	62,050	— 2,100	6 p.c. Db.	10	5	10	Nil
	Brazil	—	—	—	—	—	—	—	—	Bonds.	15	11	13	3 13/16
	Buenos Ayres & Pacific	2,806	10.11.34	64,009	— 19,473	19	1,296,238	1,562,676	— 266,438	Ord. Stk.	26	9 7/16	10	Nil
	Buenos Ayres Central	190	21.10.34	$112,100	+ $18,400	16	$2,086,500	$1,950,100	+ $136,400	Mt. Db.	30	10	23	Nil
	Buenos Ayres Gt. Southern	5,085	10.11.34	114,947	— 42,705	19	2,289,518	2,903,071	— 613,553	Ord. Stk.	4 4½	2 11½	3 5	Nil
	Buenos Ayres Western	1,930	10.11.34	38,687	— 16,941	19	770,179	1,002,002	— 231,823	,,	3 4½	1 5¾	2 2	Nil
	Central Argentine	3,700	10.11.34	92,620	— 56,647	19	2,256,812	2,556,908	— 300,096	,,	2 8½	1 5	1 5½	Nil
	Do.	—	—	—	—	—	—	—	—	Pfd.	18	10	9	Nil
	Cent. Uruguay of M. Video	273	10.11.34	16,422	— 4,577	19	290,057	293,078	— 3,021	Ord. Stk.	20	8	11	Nil
	Do. Eastern Extn.	311	10.11.34	3,638	— 491	19	58,253	54,205	+ 4,048	—	—	—	—	—
	Do. Northern Extn.	185	10.11.34	2,055	+ 13	19	32,546	31,510	+ 1,036	—	—	—	—	—
	Do. Western Extn.	211	10.11.34	1,577	+ 49	19	26,748	26,782	— 34	—	—	—	—	—
	Cordoba Central	1,218	10.11.34	28,900	— 10,050	19	581,510	775,510	— 194,000	Ord. Inc.	9 1/4	2 1/2	4 1/2	Nil
	Costa Rica	188	Aug., 1934	14,974	— 10,765	8	33,155	46,443	— 13,288	Stk.	29	20	30	6 11/16
	Dorada	70	Oct., 1934	11,700	+ 3,500	43	102,400	78,400	+ 24,000	1 Mt. Db.	7 6½	6 8¾	10 2½	5 7/8
	Entre Rios	810	10.11.34	11,079	— 702	19	214,459	248,299	— 33,840	Ord. Stk.	2 6½	9	14	Nil
	Great Western of Brazil	1,082	10.11.34	14,500	— 500	45	378,800	441,600	— 62,800	Ord. Sh.	23/6	1/2	5/8	Nil
	International of Cl. Amer.	794	Sept., 1934	$279,814	+ $65,830	39	$3,639,905	$3,499,968	+ $139,937	—	—	—	—	—
	Interoceanic of Mexico	—	—	—	—	—	—	—	—	1st Pref.	1/2	1/16	1/8	Nil
	La Guaira & Caracas	22 3/4	Oct., 1934	3,200	— 50	43	36,065	49,770	— 13,705	Stk.	16	10	8 1/2	Nil
	Leopoldina	1,918	10.11.34	25,692	+ 3,266	45	1,155,437	1,112,947	+ 42,490	Ord. Stk.	2 0¼	10	9 1/2	Nil
	Mexican	483	7.11.34	$207,200	+ $18,400	18	$4,103,800	$3,436,200	+ $667,600	,,	3	1/2	2 1/4	Nil
	Midland of Uruguay	319	Oct., 1934	12,938	+ 3,321	17	38,789	34,516	+ 4,273	,,	3	1	1 1/2	Nil
	Nitrate	401	31.10.34	10,875	+ 3,163	43	204,986	112,650	+ 92,336	Ord. Sh.	78/6	1 1/16	2 7/8	Nil
	Paraguay Central	274	10.11.34	4,390	+ 1,980	19	85,520	64,440	+ 21,080	Pr. Li. Stk.	72	49½	72	8 5/16
	Peruvian Corporation	1,059	Oct., 1934	64,407	+ 10,107	17	250,845	216,868	+ 33,977	Pref.	15¼	5	10	Nil
	Salvador	100	3.11.34	£9,429	— £1,963	18	£170,992	£245,165	— £74,173	Pr. Li. Db.	70	66½	70	7 1/8
	San Paulo	1531/2	4.11.34	25,562	— 2,145	44	1,315,063	1,327,757	— 12,694	Ord. Stk.	102	68	75	5 5/16
	Taltal	164	Oct., 1934	2,300	+ 605	17	9,205	7,088	+ 2,117	Ord. Sh.	1 3/4	3/4	1 7/8	5 5/16
	United of Havana	1,365	10.11.34	16,150	+ 5,436	19	315,498	239,332	+ 76,166	Ord. Stk.	8	2	3 1/2	Nil
	Uruguay Northern	73	Oct., 1934	1,132	— 70	17	4,444	4,431	+ 13	Deb. Stk.	6	3 1/2	5 1/2	Nil
Canada.	Canadian National	23,736	7.11.34	639,012	+ 5,688	44	28,192,212	25,209,043	+ 2,983,169	—	—	—	—	—
	Canadian Northern	—	—	—	—	—	—	—	—4p.c.	Perp. Dbs.	60½	38	76½	5 1/4
	Grand Trunk	—	—	—	—	—	—	—	—	4 p.c. Gar.	99¾	85	103	3 7/8
	Canadian Pacific	17,018	7.11.34	540,200	+ 57,000	44	21,270,800	19,276,600	+ 1,994,200	Ord. Stk.	22 1/8	11	12	Nil
India.†	Assam Bengal	1,329	13.10.34	30,637	+ 3,735	28	754,218	633,341	+ 120,877	Ord. Stk.	79	70	87 1/2	3 7/16
	Barsi Light	202	20.10.34	2,017	— 150	29	80,220	81,907	— 1,687	Ord. Sh.	101 3/4	70	102½	5 7/8
	Bengal & North Western	2,112	20.10.34	38,615	+ 1,604	3	111,510	117,468	— 5,958	Ord. Stk.	292	240	288½	5 9/16
	Bengal Dooars & Extension	161	20.10.34	3,171	+ 119	29	84,138	81,490	+ 2,648	,,	127	119	125½	5 9/16
	Bengal-Nagpur	3,269	30.9.34	115,725	+ 6,629	26	2,877,717	2,636,153	+ 241,564	,,	97 1/4	83 1/2	104½	3 15/16
	Bombay, Baroda & Cl. India	3,072	3.11.34	149,700	+ 4,575	31	4,606,500	4,370,175	+ 236,325	,,	112	107	113½	5 5/16
	Madras & South'n Mahratta	3,230	13.10.34	194,850	+ 20,348	28	3,156,288	3,089,434	+ 66,854	,,	127	114 1/4	130½	6 7/8
	Rohilkund & Kumaon	546	20.10.34	7,857	+ 1,897	3	21,756	20,411	+ 1,345	,,	260	225	255½	5 7/8
	South India	2,526	20.10.34	74,292	+ 4,303	29	2,378,076	2,286,052	+ 92,024	,,	119½	112	117½	6 13/16
Various.	Beira-Umtali	204	Aug., 1934	68,598	+ 25,002	48	587,777	454,875	+ 132,902	—	—	—	—	—
	Bilbao River & Cantabrian	15	Oct., 1934	524*	— 1,064	43	16,719	15,408	+ 1,311	—	—	—	—	—
	Egyptian Delta	621	31.10.34	9,847	— 469	30	130,946	119,375	+ 11,571	Prf. Sh.	13 1/32	1 3/4	2 3/4	3 5/8
	Great Southern of Spain	104	3.11.34	2,774	+ 560	44	98,630	96,794	+ 1,836	Inc. Deb.	4	3	3 1/2	Nil
	Kenya & Uganda	1,625	Mar., 1934	240,520	+ 21,064	12	638,137	606,192	+ 31,945	—	—	—	—	—
	Manila	—	—	—	—	—	—	—	—	B. Deb.	53	33 1/2	44 1/2	7 7/8
	Mashonaland	913	Aug., 1934	120,007	+ 38,477	48	1,076,622	731,593	+ 345,029	1 Mg. Db.	91 5/4	42	95 1/2	5 1/4
	Midland of W. Australia	277	Sept., 1934	13,638	+ 1,333	9	39,590	38,162	+ 1,428	Inc. Deb.	89	70	97 1/2	4 1/8
	Nigerian	1,905	22.9.34	35,482	+ 17,598	25	646,132	558,018	+ 88,114	—	—	—	—	—
	Rhodesia	1,538	Aug., 1934	197,739	+ 44,558	48	1,810,487	1,340,993	+ 469,494	4 p.c. Db.	98 1/2	80 3/4	102 2/8	3 7/8
	South African	13,217	20.10.34	506,554	+ 22,041	29	14,579,754	12,839,252	+ 1,740,502	—	—	—	—	—
	Victorian	6,172	July, 1934	692,998	+ 25,952	4	692,998	667,046	+ 25,952	—	—	—	—	—
	Zafra & Huelva	112	Sept., 1934	14,557	+ 393	39	102,566	99,579	+ 2,987	—	—	—	—	—

NOTE.—Yields are based on the approximate current prices and are within a fraction of 1/16.

* Rebellion. † Receipts are calculated @ 1s. 6d. to the rupee. § ex dividend. Salvador receipts are in currency.

The variation in Sterling value of the Argentine paper peso has lately been so great that the method of converting the sterling weekly receipts at the par rate of exchange has proved misleading, the amount being overestimated. The statements from July 1 onwards are based on the current rate of exchange and not on the par value.

Yield % (See Note)
Nil
Nil
8
Nil
3 13/16
Nil
Nil
Nil
Nil
Nil
Nil
Nil
—
—
Nil
6 11/16
5 7/8
Nil
Nil
—
Nil
Nil
Nil
Nil
Nil
Nil
8 5/16
Nil
7 1/8
5 5/16
5 5/16
Nil
Nil
—
5 1/4
3 7/8
Nil
—
3 7/16
5 7/8
5 9/16
5 9/16
3 13/16
5 5/16
6 7/8
5 7/8
6 13/16
—
—
3 5/8
Nil
—
7 7/8
5 1/4
4 1/8
—
5 7/8
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